

MARYLAND STATE PLANNING COMMISSION

Abel Wolman, Chairman

William L. Galvin

Robert H. Riley

Thomas B. Symons

Ezra B. Whitman

Francis D. Friedlein, Executive Secretary

ECONOMIC STUDIES

OF

MARYLAND

PART III

by

James M. S. Waring, Research Director,
Department of Political Philosophy and the Social Sciences
Fordham University

Assisted by

Larry A. Grine, Consultant,
National Resources Committee.

Assistance in the preparation of this report was also furnished
by the personnel of Works Progress Administration Work Project No. 7068.

For sale by the Maryland State Planning Commission

Letrobe Hall, The Johns Hopkins University

Baltimore, Maryland - - - - - Price 25 cents

Publication 2

ACKNOWLEDGMENTS

Grateful acknowledgment is made to:

The Department of Political Philosophy and the
Social Sciences, Graduate School, Fordham University;

The National Resources Committee;

The Works Progress Administration;

The National Research Project of the Works Progress
Administration;

The National Industrial Conference Board;

The United States Bureau of the Census;

The Maryland Bureau of Labor and Statistics;

for material and personnel used in the preparation of Part III.

ECONOMIC STUDIES OF MARYLAND

PART III

INTRODUCTORY STATEMENT

In Parts I and II of this series of Economic Studies of Maryland, previously published, we presented an outline of the Survey and a Base Pattern of Maryland's economy as of 1930. In this issue, Part III, are presented data indicative of industrial changes in the Base Pattern and of changes in certain significant general characteristics. These are observed for both the sixty year period prior to and the seven year period subsequent to 1930, the year of our Base Pattern. Some discussion and interpretation of these data is made to demonstrate our method of using them. However, the more complete interpretations are deferred to Part IV.

Changes of a general nature observed are those relating to population, occupational pursuits and income. The more specific industrial changes are indicated by trends in Employment, Wages, Value of Products and Value Added by Manufacture for the Manufacturing Industries collectively and for the several selected Manufacturing Industry groups.

The material presented provides indicators of all of these changes in Maryland and data for relating them to corresponding national changes for the purpose of observing the State's changing status in the nation's economic structure.

Some of the more significant changes indicated by the material presented are:

Population Change:

In the 1870-1930 period Maryland's population slightly more than doubled while that of the nation more than trebled. Following 1900, how-

Digitized by the Internet Archive
in 2010 with funding from
Lyrasis Members and Sloan Foundation

ever, Maryland's rate of population increase, while lower than the national, was more constant and in the 1920-1930 decade closely approached the national rate.

Concentration of Population Increase:

Maryland's population increase was confined almost entirely to the State's Industrial Sections. In the 1890-1930 period, about 92% of the State's population increase was concentrated in the six Industrial Sections.

Occupational Change:

The 1870-1930 period was characterized by occupational changes of great significance to the State's economy. In relative occupational importance, expressed in percent of the total gainfully occupied in 1870 and 1930, Agriculture declined greatly, dropping from 31.1% to 12.5%. In the same period Industry collectively increased greatly, rising from 68.9% to 84.2%. The most pronounced part of this increase was in the Non-Service Industries which increased from 24.5% to 34.9%. The Service Industries collectively increased also, but to a lesser extent, than the Non-Service Industries, increasing from 44.4% to 49.2%.

Contrasted with Maryland's most pronounced growth in the relative occupational importance of her Non-Service Industries and particularly her Manufacturing Industries, the nation's most pronounced growth was in the Service Industries. In 1870 only 24.6% of the nation's gainfully occupied were in the Service Industries as compared to 47.2% in 1930.

Changing Relative Importance of Maryland's Manufacturing Industries:

Two types of changes in relative importance of the State's Manufacturing industries have been observed and these have been designated as Intra-State and Inter-State changes. The first relates to shifting in relative importance, within the State, of the several predominant Manufacturing

Industries and the second relates to the changing relative importance of a Maryland Industry in its national competitive field. Both types are expressed in changes in employment and wages.

The charts depicting Intra-State changes show the constant relative importance of the Clothing and the Food and Allied Industries in the State and the greater variation in importance of most of the other Industries.

The charts depicting Inter-State change in the position of Maryland's Clothing Industry show that Maryland rather constantly maintained a position of importance in this Industry varying between fifth position in 1909 and eighth in 1935. This change in position however, indicates a loss in competitive position of Maryland's Clothing Industry in the national field.

Manufacturing Industry Trends - United States and Maryland:

The trends in Employment, Wages, Value of Products and Value Added by Manufacture for the Manufacturing Industries collectively (1921 to 1937) and for selected Predominant Maryland Industries (1909-1937) are presented in a series of graphs. These show trends for both the United States and Maryland, thus providing material for comparing the national and State performance of these Industries.

Interpretive summaries of the series of Industry employment trends, showing deviations of performance in Maryland from that in the United States for the Manufacturing Industries collectively and for the individual Industries are presented in tabular form.

Without going into any extensive interpretation of this material on Manufacturing Industry trends, which is deferred to Part IV, some of the more outstanding indications may be mentioned.

It will be observed that in the changes in Employment, Wages, and Value Added by Manufacture, the Manufacturing Industries of Maryland collect-

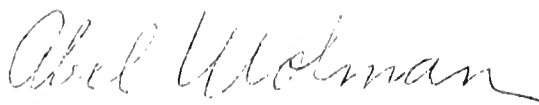
ively in no case reached the 1929 boom highs, or the following depression lows of the nation. The lesser magnitude of the cyclical swings of the Maryland Manufacturing Industry Group is an indication of better cyclical stability.

A better secular or long time characteristic for the Maryland group is indicated by 1937 highs above 1929 highs attained in Employment, Wages, and Value added by Manufacture by the Maryland group as contrasted with 1937 highs lower than 1929 highs for the national group.

It is quite evident from the graphs showing the trends for individual Industries and the departures shown in the interpretive summary of these, that a number of Maryland's Predominant Industries lagged behind the same Industries nationally while others either broke even or were ahead of the national. The performance of the Manufacturing Industries of Maryland collectively indicates that the Industries which gained more than offset those which lost.

Income Change:

The changes in total income and income of various kinds in Maryland presented in the charts relating to this subject for the 1929-1935 period, indicate the good cyclical characteristics of Maryland's income in the period. In total income as well as in each of the five classifications, Maryland's depression lows were better than those of the nation and she showed positive income departures for the period when compared with the national.



Chairman
Maryland State Planning Commission.

ECONOMIC STUDIES OF MARYLAND

PART III

CONTENTS

	PAGE
CHAPTER 1: GENERAL	1
CHAPTER 2: POPULATION CHANGE AND RATE OF CHANGE-COMPARISON OF THE UNITED STATES AND MARYLAND (PERIOD 1870-1930)- CONCENTRATION OF MARYLAND'S POPULATION CHANGE IN INDUSTRIAL SECTIONS.	8
CHAPTER 3: OCCUPATIONAL CHANGE.	16
CHAPTER 4: THE PREDOMINANT INDUSTRIES OF THE STATE - THEIR INTRA-STATE CHANGE IN IMPORTANCE - THEIR INTER-STATE CHANGE IN IMPORTANCE.	21
CHAPTER 5: THE MANUFACTURING INDUSTRIES OF MARYLAND - CHANGES IN EMPLOYMENT, WAGES, VALUE OF PRODUCTS AND VALUE ADDED BY MANUFACTURE RELATED TO NATIONAL CHANGES IN THE SAME INDUSTRIES- SECULAR AND CYCLICAL CHANGES - PERIOD 1909 - 1937.	31
CHAPTER 6: INDUSTRIAL AND SECTIONAL CRITERIA - DEPARTURES.	71
CHAPTER 7: INCOME CHANGE - INCOME (1) BY KIND; (2) BY INDUSTRIAL CLASSIFICATION - INCOME "DEPARTURES".	80
CONCLUSION	83

ECONOMIC STUDIES OF MARYLAND

PART III

EXHIBITS

EXHIBIT		Page
1	Map - Economic Sections Of Maryland.	6
2	Table - The Importance Of Each Of The Predominant Industries To Each Industrial Section And To The State.	7
3	Graph - Population Change - United States and Maryland - 1870 - 1930.	10
4	Graph - Rates Of Population Change - United States And Maryland - 1870 - 1930.	11
5	Table - Rates Of Population Change - United States And Maryland.	12
6	Map - Population Trend - Maryland - 1890 - 1930.	13
7	Table - Population Changes In The Economic Sections Of Maryland - 1890 - 1930.	14
7a	Table - Population Changes In Economic Sections Of Maryland - 1910 - 1930.	15
8	Block Chart - Changes In The Economic Structures Of The United States And Maryland - 1870 - 1930.	20
9	Block Chart - Changing Importance Of Employment In Selected Industries Of Maryland - Intra-State Chart. - 1909 - 1937.	25
9a	Block Chart - Changing Importance Of Wages In Selected Industries Of Maryland - Intra-State Chart. 1909 - 1937.	26
10	Block Chart - Clothing - National Trends And Percent Distribution By States - Employment - 1909 - 1937 - Inter-State Chart.	27
11	Block Chart - Clothing - National Trends And Percent Distribution By States - Wages - 1909 - 1937 Inter-State Chart.	29

EXHIBIT

Page

12 and 12a	Graphs- Employment, Wages, Value Of Products And Value Added By Manufacture. Manufacturing Industries Collectively - United States And Maryland.	40-41
13 and 13a to 24 and 24a	Graphs- Employment, Wages, Value Of Products And Value Added By Manufacture In Selected Manufacturing Industries Of Maryland. <u>Industries</u> Clothing Other Iron And Steel Food And Allied Blast Furnaces And Steel Rolling Mills Chemical And Allied Paper Printing And Allied Lumber And Allied Non-ferrous Metals Textiles Clay, Glass And Stone Automobile Factories Leather And Allied	42-43 44-45 46-47 48-49 50-51 52-53 54-55 56-57 58-59 60-61 62-63 64-65
25	Chart - Periods Selected For Analytical Purposes 1909 - 1937	66
26	Table - An Interpretive Summary Of The Manu- facturing Industries Of Maryland Col- lectively. For The Recovery Phase Of The '19 - '29 Cycle And The Complete '29 - '37 Cycle.	67
27	Table - 3 Sheets - Interpretive Summary Of Certain Secular And Cyclical Character- istics Of Maryland's Manufacturing In- dustries - Severally - 1909 - 1937	68-68a 68b
27a	Text - Explanation Of The Method Of Constructing Exhibit 27	69
28	Graphs -Sectional Criteria - "Departures" - Urban Sections	78
29	Graphs -Sectional Criteria - "Departures" - Rural Industrial Sections	79
30	Block Charts - Income - United States And Maryland - Salaries And Wages - Entrepreneurial - Dividends Interest - Net Rents and Royalties - Total Income.	82

ECONOMIC STUDIES OF MARYLAND

PART III

OBSERVATION OF INDUSTRIAL CHANGES

IN

THE BASE PATTERN

PRIOR TO AND SUBSEQUENT TO 1930

CHAPTER 1

GENERAL

In the Commission's first release of "Economic Studies of Maryland," Parts I and II, Part II was devoted to a presentation of the method of sectionalization, by which the nation and the State were divided into Economic Sections; to methods of determining the Predominant Industries and types of farming products of these Sections; and to a Base Pattern of the Industry and Agriculture of the Sections and the State, as of 1930, constructed by these methods. This Part covered the first phase of the Survey. Familiarity with Parts I and II is essential to an understanding of this Part III and subsequent Parts.

Part III is confined to the consideration of Industry and relates to the second phase of the Survey the main objectives of which are:

1. The observation of changes in the Base Pattern for a long time (secular) period prior to the year selected for the Base Pattern (1930) and the observation and evaluation of changes in the Base Pattern subsequent to 1930.
2. The determination of changes in competitive position of Maryland's Predominant Industries with the same Industries in other states.
3. The determination of the resultant gains or losses in the State's position in the national economic pattern and gains or losses of the Sections' positions in the State's economic pattern.

Changes of various kinds and degrees are constantly taking place in any community and have an influence on the social and economic structure of the community. Changes in population, changes in occupational pursuits, as depicted in the three major occupational subdivisions (Ag-

griculture, Non-Service or Productive Industries and Service Industries); changes in Employment, Wages, Value of Products and Value Added by Manufacture; changes in income of various kinds and in the demand for services are all given consideration in our observation of "changes."

Broadly the general procedure is largely one of compiling, analyzing and to some extent interpreting⁽¹⁾ published statistical data relating to these "changes", correlating observed Maryland changes with national changes and depicting these observations in graphs, charts and tabulations of various kinds.

The sources of statistical data used in Part III are:

United States Census of Population

United States Census of Manufactures

United States and Maryland Bureau of Labor Statistics

National Industrial Conference Board

The methods used in the observations of changes in the second phase of the Survey, as applied to Industries, are directed to developing:

1. The characteristics of change in Employment, Wages, Value of Products and Value Added by Manufacture for the State's Manufacturing Industries Collectively.
2. The characteristics of change in Employment, Wages, Value of Products and Value Added by Manufacture for the several Predominant Industries.
3. The changing degree of importance for the several Predominant Industries to the State.
4. The changing degree of importance of the State's several Predominant Industries in their respective national fields.

(1) The more complete interpretations are made in Part IV.

Types of Change:

The types of "change" observed in Part III are:

1. Population "changes", trend, rate of change, and concentration; discussed and illustrated in Chapter 2.
2. Occupational "changes", discussed and illustrated in Chapter 3.
3. "Changes" in the Predominant Industries; discussed and illustrated in Chapter 4.
4. "Changes" in Employment, Wages, Value of Products and Value Added by Manufacture in Predominant Manufacturing Industries; discussed and illustrated in Chapter 5.
5. Income "changes"; discussed and illustrated in Chapter 7.

Determination of Sectional Criteria:

Following the development of changes of various kinds in the Predominant Industries, the first step is taken towards determining the resultant effects of the observed changes on the Industrial Sections. This step is the determination of Sectional Criteria and Departures. The method of developing these is discussed and illustrated in Chapter 6.

Time Periods of Change Observations:

In making our change observations, trends of different economic elements are considered over long periods of time and also over the more transitory "cyclical" periods. We have clearly differentiated between changes during a long time or "secular" period and those occurring in the more transitory periods known as business cycles. These two types of change are discussed and illustrated in Chapter 5. The Industries of any Section have "secular" and "cyclical" characteristics peculiar to themselves and a knowledge of these characteristics together with a knowledge of the "industrial pattern" of the Section are requisite to a determination of the secular and cyclical characteristics of the Section.

The causes of the secular and cyclical changes of the Industries in any Section are widely different as are also their effect on the Section (the community).

The Use of Statistical Material:

It is quite important to understand that the statistical observations of change in Part III are accepted only as indications of change. This in no sense implies that the statistical studies are not useful, or that because of inaccuracies, they should not be considered. The fact that they do indicate change with reasonable precision in the majority of cases makes them useful as indicators of change. The fact that they do not accurately indicate change in all cases however, invalidates their use in the discrete determinations relating to any particular change.

In our use of statistical material in this Part III therefore, no observation of a statistical change is accepted as evidence of such change. Wherever such a change is indicated by the statistical analysis, if it is a change of such magnitude as to indicate a gain or loss in competitive position of an Industry, it is subjected to the diagnostics of the third phase of the Survey in which its validity is determined and its correctness established.

"We have endeavored in the preceding paragraphs to develop two thoughts; (1) the usefulness of the statistical methods in the second phase as described herein; and (2) the limitations in the use of these statistical methods.

The procedures described in this Part III are intended to provide a method for continuously indicating, by various available statistical series, changes in such industrial factors as Employment, Wages, Product Value, etc., in the several Predominant Manufacturing Industries of the State in such a way that later, in the third phase of the Survey the effects of such Industry changes on the economy of the State and the various economic Sections of the State may be continuously evaluated.

It has not been the purpose of this release to provide a compendium of certain statistical material suitable for discrete determinations.

In this chapter we have indicated both the purpose and the limitations of use of the statistical material presented. Both the purpose and the limitations have justified a less rigorous examination of statistical material than would have been the case had the observed statistical changes been accepted as predicates for conclusions. Readers are cautioned, therefore, against using any of the statistical material presented herein for other purposes without checking it at its source.

In the Census of Population, from which the Predominant Industries of the Base Pattern are derived the Bureau reports only broad Industry groups which are each comprised of related Industries. These groups are not used in the Biennial Census of Manufactures which reports on the separate industries. In the statistical methods therefore, it is necessary to select and group these separate Industries under their proper broad Industry group classifications.

In establishing the graphs of the various statistical series presented herein, we have endeavored to use reasonable care in selecting the Census of Manufactures classifications comprising the different Industry groups. These classifications are a matter of record.

Due to changes in the Census of Manufactures methods of reporting, inaccuracies in these data may occur and it is pointed out here that the first step in "validating" any observed statistical indication of change is the consideration of sampling and classifications.

For the readers convenience, a Sectional Map of Maryland and a tabulation showing the Sectional and State importance of the Predominant Industries of Maryland, originally presented in Part II, are reproduced as Exhibit 1 and Exhibit 2 on pages 6 and 7 at the end of this chapter.

EXHIBIT- I ECONOMIC STUDIES OF MARYLAND, PART III ECONOMIC SECTIONS OF MARYLAND

Distribution by Counties and Cities in Maryland.

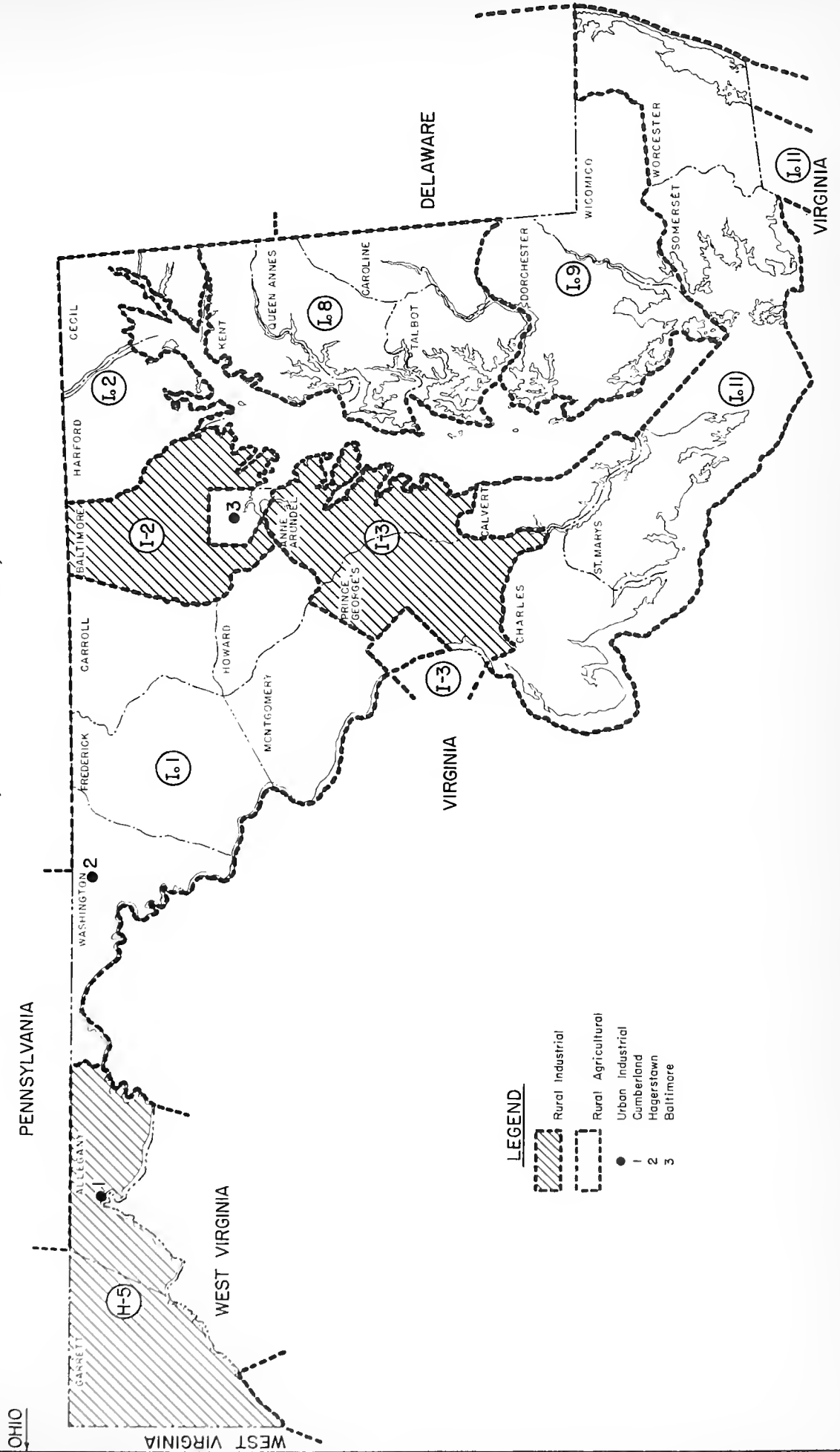


EXHIBIT 2

RELATIVE IMPORTANCE OF PREDOMINANT INDUSTRIES OF MARYLAND

The importance of each of the Predominant Industries to each Industrial Section of Maryland and to the State as a whole. All figures in % of the total industrial employment of the respective sections.

PREDOMINANT INDUSTRIES	Industrial Sections						The State
	Urban			Rural			
	Baltimore	Cumberland	Hagerstown	Section I-2	Section I-3	Section H-5	
Building	6.7	5.4	5.4	9.8	10.8		7.5
Clothing	5.8			2.2	2.1		4.6
Other Iron & Steel	4.4	4.7	5.9	4.7	2.9		3.6
Food & Allied	3.2	1.9	2.0				3.0
Blast Furnaces & Mills	7.5	3.0		15.0			2.7
Chemical & Allied	2.9	2.9		2.3	1.2		2.4
Peper, Printing & Allied					2.0	2.7	1.9
Lumber & Allied			5.3				1.6
Non-Ferrous Metals	2.1						1.5
Textiles		10.7	6.0			4.2	1.3
Forestry & Fishing					1.3		1.1
Clay, Glass & Stone		1.7					1.0
Extraction of Minerals						13.0	1.0
Automobile Factories			2.1				0.9
Leather & Shoes			5.1				0.7

CHAPTER 2

POPULATION CHANGE AND RATE OF CHANGE - COMPARISON OF THE UNITED STATES AND MARYLAND (PERIOD 1870-1930) - CONCENTRATION OF MARYLAND'S POPULATION CHANGE IN INDUSTRIAL SECTIONS.

Population Change:

In Exhibit 3 on page 10 we have shown, graphically, the population trend in the United States and Maryland for the sixty year period, 1870-1930, expressed in percent of 1870 population. This exhibit shows that the population of Maryland increased at a considerably lower rate than the national, that of Maryland slightly more than doubling while the national population more than trebled.

Rate of Population Change:

In Exhibits 4 and 5 on pages 11 and 12 we have shown graphically and in tabular form the rate of population change in the same sixty year period, expressed in the percent increase in each decade, for the United States and Maryland.

These exhibits show the following:

- 1 - That the rate of population increase in the nation continuously declined in each decade from 1870 - 1920 except for a small increase in the 1900-1910 decade.
- 2 - That the rate of population increase in Maryland alternately declined and increased in successive decades from 1870 - 1920.
- 3 - Both the national and Maryland rates increased slightly in the 1920-1930 decade.
- 4 - In the 1910-1920 and 1920-1930 decades Maryland's rates of population increase closely approached those of the nation and there was considerably less difference between them than in any of the preceding decades.

Concentration of Maryland's Population Change:

Reference to Exhibits 6 and 7 on pages 13 and 14 shows that during the period 1890-1930, Maryland's population increased from 1,042,390 to 1,631,526 an increase of 589,136 and a percentage increase of 56.5%. Coincidental with this State increase in population the six industrial sections of Maryland rose in population from 633,424 to 1,174,568, an increase of 541,144 and a percentage increase of 85.4% as compared to 56.5% for the entire State.

This increase in the six Industrial Sections accounted for about 92 percent of the State's population increase. As further evidence of the high concentration of population change in the Industrial Sections, there was an increase of 477,179 in the combined populations of the Urban Section of Baltimore and the two Rural Industrial Sections I-2 (Baltimore County) and I-3 (Anne Arundel and Prince George's Counties), which collectively accounted for 88% of the population increase in all six of the Industrial Sections and 81% of the State's increase.

Exhibit 7a page 15, is similar to 7 but is confined to changes in the latter half of the 1890 - 1930 period. It will be observed that the increase in six Industrial Sections in these two decades accounted for about 95% of the State's population increase.

This concentration of population change in the Industrial Sections and particularly in Baltimore City and Baltimore, Anne Arundel and Prince George's Counties is peculiarly significant to the economy of the State.

EXHIBIT-3

ECONOMIC STUDIES OF MARYLAND, PART III

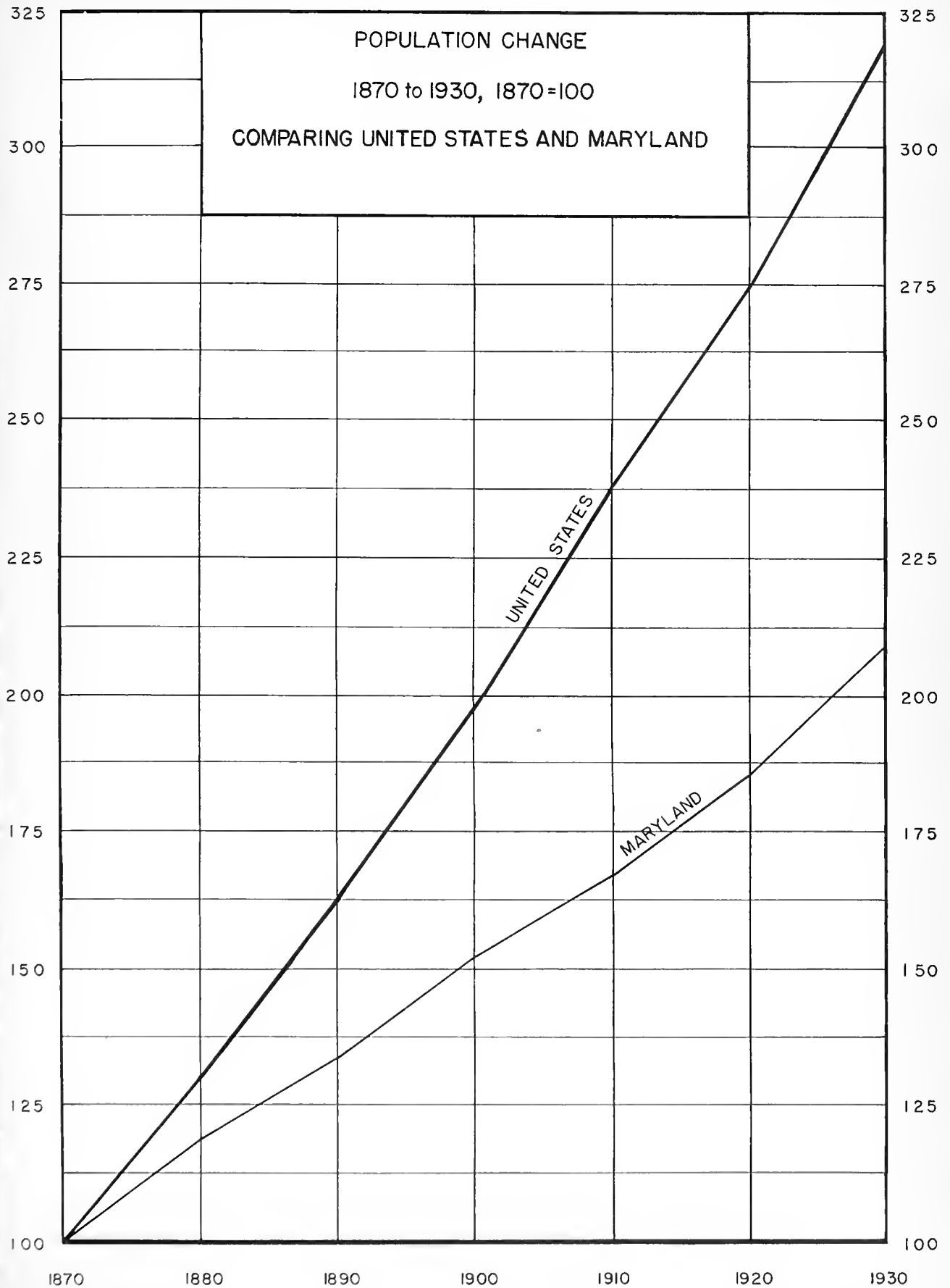
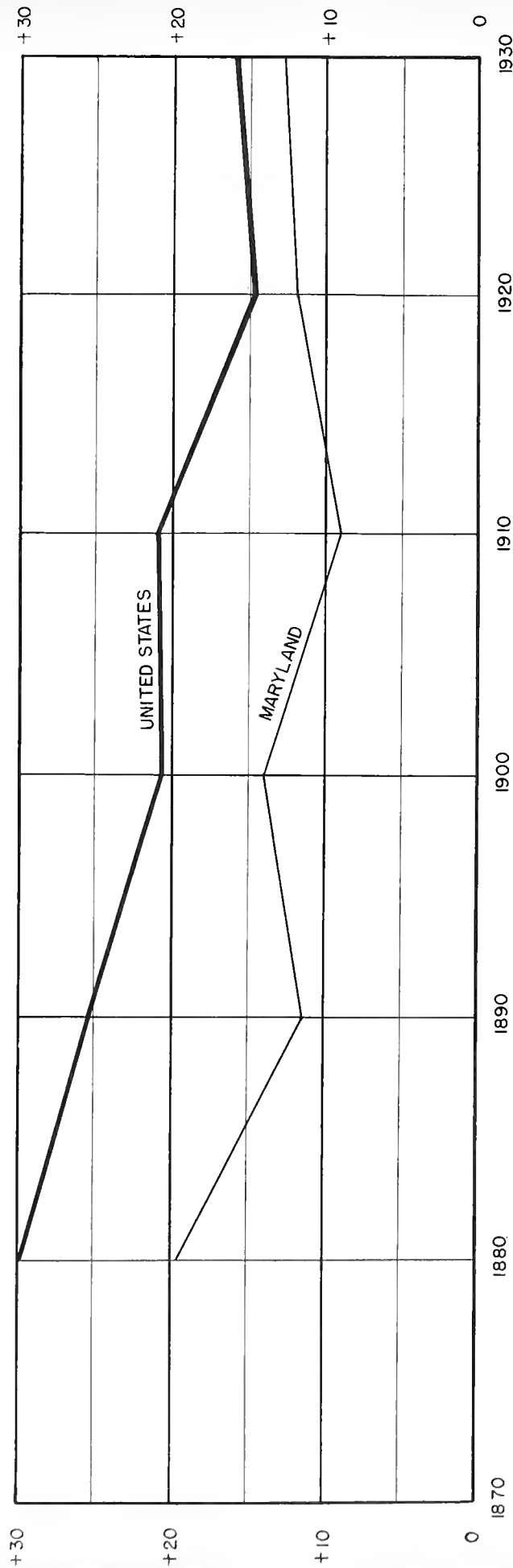


EXHIBIT-4 ECONOMIC STUDIES OF MARYLAND, PART III RATES OF CHANGE

IN
POPULATION

UNITED STATES AND MARYLAND



$$\text{RATES OF CHANGE FOR EACH DESIGNATED YEAR} = \frac{\text{POPULATION INCREASE IN PRECEDING DECADE}}{\text{POPULATION AT BEGINNING OF SUCH DECADE}}$$

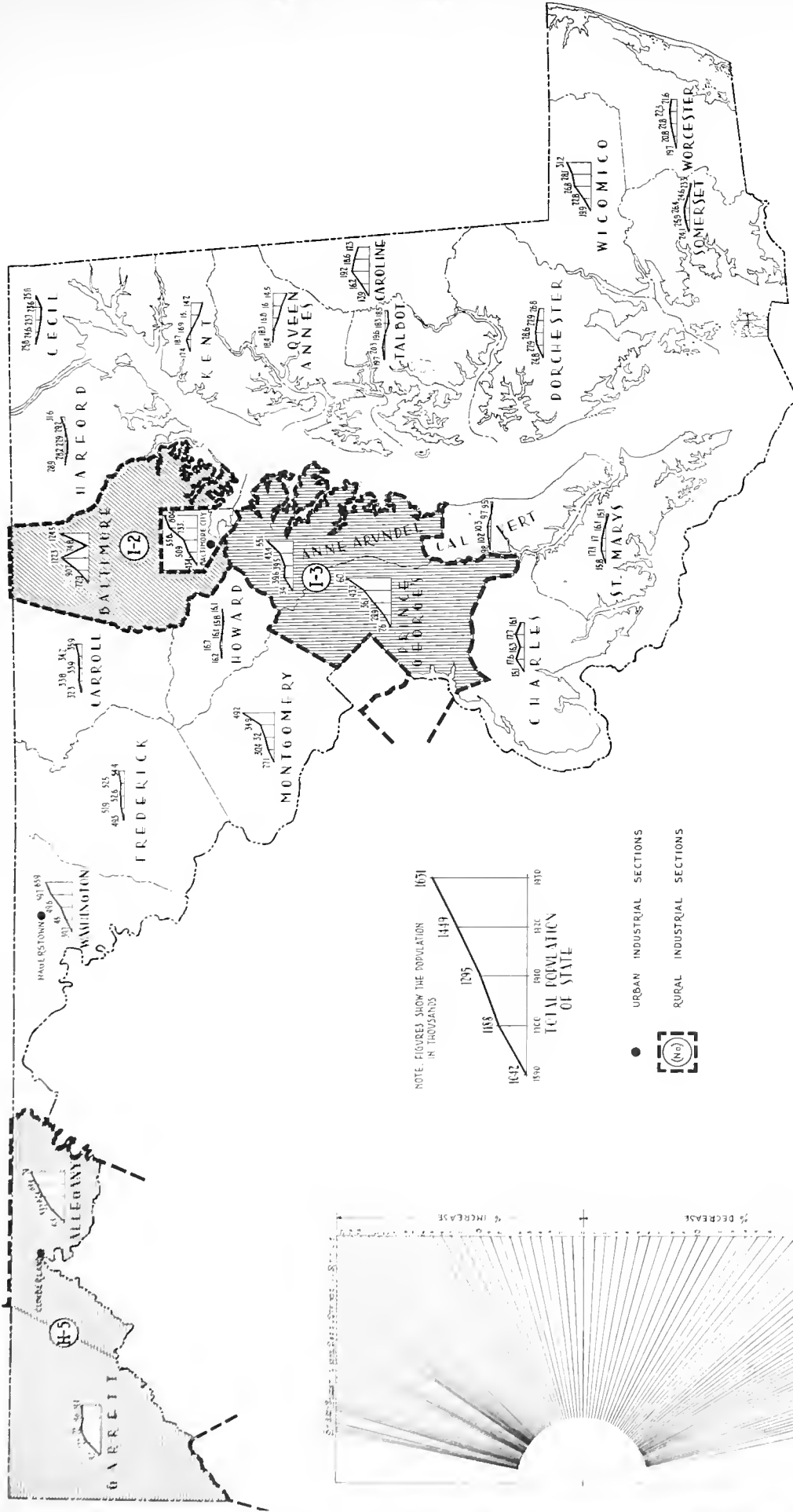
EXHIBIT 5

POPULATION

Rates of Change - United States and Maryland

<u>UNITED STATES</u>			<u>MARYLAND</u>	
YEAR	TOTAL POPULATION	PERCENT CHANGE FROM PREVIOUS DECADE	TOTAL POPULATION	PERCENT CHANGE FROM PREVIOUS DECADE
1870	38,558,371		780,894	
1880	50,155,783	30.0	934,943	19.7
1890	62,947,714	25.5	1,042,390	11.5
1900	75,994,575	20.7	1,182,044	14.0
1910	91,972,236	21.0	1,295,346	9.0
1920	105,710,620	14.9	1,449,661	11.9
1930	122,775,046	16.1	1,631,526	12.5

ECONOMIC STUDIES OF MARYLAND, PART III



SCALE OF SLOPES

MARYLAND POPULATION TRENDS, 1890 TO 1930



EXHIBIT 7

POPULATION CHANGES IN THE INDUSTRIAL SECTIONS
1890 - 1930

	<u>1890</u>	<u>1930</u>	<u>Increase</u> <u>Number</u>	<u>Percent</u>
Maryland	1,042,390	1,631,526	589,136	56.5

Industrial Sections

H-5 (Including Urban Section of Cumberland)

Garrett County	14,218	19,908	5,695	
Allegany County	41,571	79,098	37,527	
Total	55,784	99,006	43,222	77.5

I-2

Baltimore County	72,909	124,565	51,656	70.8
------------------	--------	---------	--------	------

I-3

Anne Arundel	34,094	55,167	21,073	
Prince Georges	26,080	60,095	34,015	
Total	60,174	115,262	55,088	91.5

Cities

Hagerstown	10,118	30,861	20,743	205.0
Baltimore	434,439	804,874	370,435	85.3
Total All Industrial Sect.	632,424	1,174,568	(1) 541,144	85.4

(1) This total population increase of all industrial sections is 91.85% of the population increase of the State.

Note: - Due to annexation of parts of Baltimore and Anne Arundel Counties to Baltimore City in 1913 the population changes in these counties and Baltimore City do not represent the true change.

The true change for the combined area is shown in the following table:

	<u>1890</u>	<u>1930</u>	<u>Increase</u> <u>Number</u>	<u>Percent</u>
Baltimore County	72,909	124,565	51,656	
Anne Arundel County	34,094	55,167	21,073	
Baltimore City	434,439	804,874	370,435	
Total	541,442	984,606	443,164	81.8

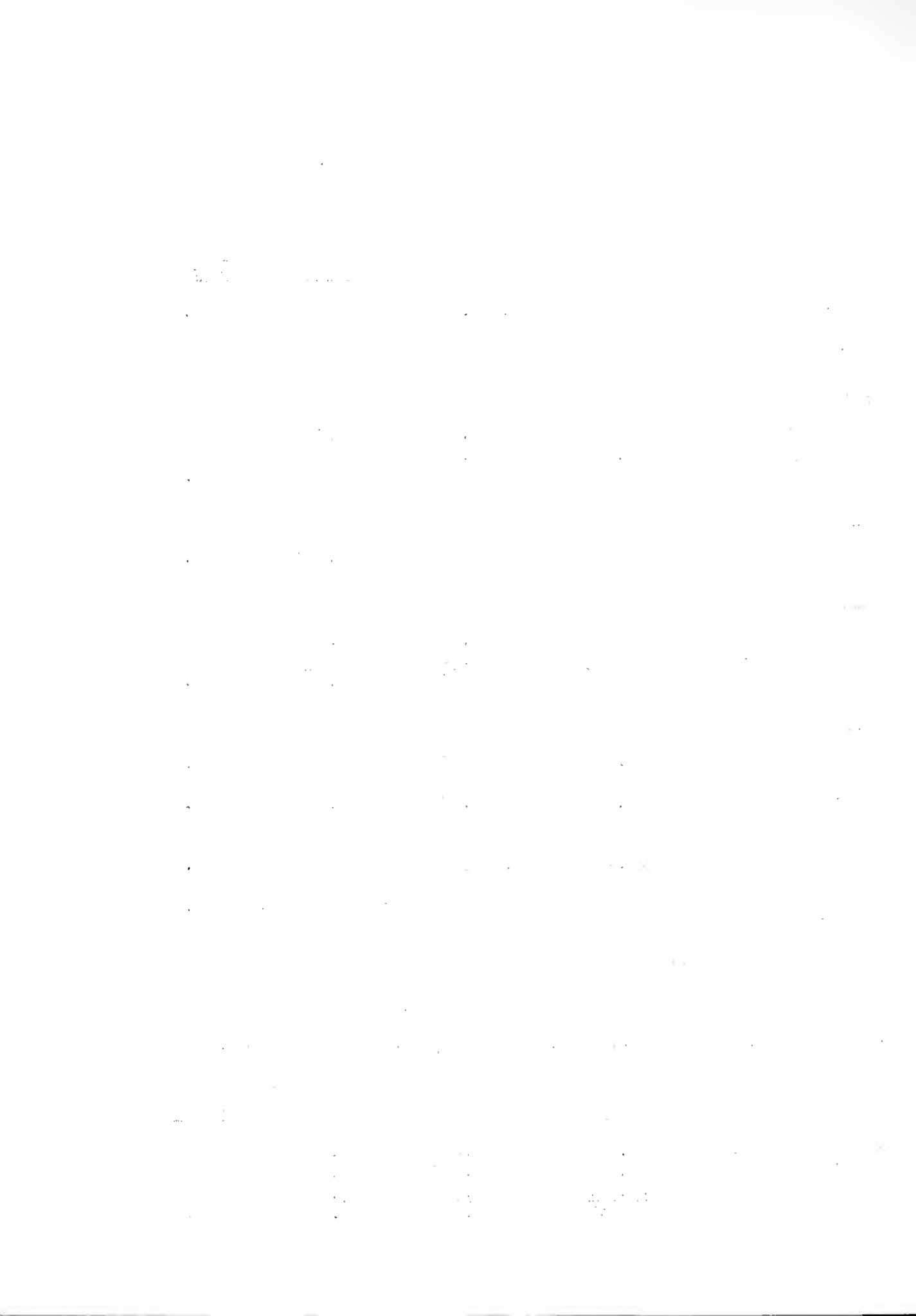


EXHIBIT 7a

POPULATION CHANGES IN THE ECONOMIC SECTIONS
1910 - 1930

	<u>1910</u>	<u>1930</u>	<u>Increase</u>	
			<u>Number</u>	<u>Percent</u>
Maryland	1,295,346	1,631,526	336,180	25.9
Industrial Sections				
<u>H-5 (Including Urban Sections of Cumberland)</u>				
Garrett County	20,105	19,903	-197	
Allegany County	62,411	79,098	16,687	
Total	82,516	99,001	16,480	20.0
<u>I-2</u>				
Baltimore County	122,349	124,565	2,216	1.8
<u>I-3</u>				
Anne Arundel	39,553	55,167	15,614	
Prince Georges	36,147	60,095	23,948	
Total	75,700	115,262	39,562	52.3
<u>Cities</u>				
Haverstown	16,507	30,861	14,354	86.9
Baltimore	558,485	804,874	246,389	44.1
Total All Industrial Sect.	855,557	1,174,568	(1) 319,011	37.3

(1) This total population increase of all industrial sections is 94.89% of the population increase of the State.

Note: - Due to annexation of parts of Baltimore and Anne Arundel Counties to Baltimore City in 1919 the population changes in these counties and Baltimore City do not represent the true change.

The true change for the combined area is shown in the following table:

	<u>1910</u>	<u>1930</u>	<u>Increase</u>	
			<u>Number</u>	<u>Percent</u>
Baltimore County	122,349	124,565	2,216	
Anne Arundel County	39,553	55,167	15,614	
Baltimore City	558,485	804,874	246,389	
Total	720,387	984,606	264,219	36.7

CHAPTER 3

OCCUPATIONAL CHANGES

Referring to Exhibit 8, on page 20 it will be seen that population changes and the changing relationship of occupations to population and to one another are shown on the left side of the chart for the United States and Maryland. On the right side of this chart are shown, for the United States and Maryland, the change in total gainfully occupied and the changing relationship of the occupations, or in other words the changing importance of these occupations, both to the nation and to the State. The occupational classifications used in the chart are Agriculture, Service Industry and Non-Service (productive) Industry. The two types of Industry classification, service and non-service, have been defined in Part II.

This chart alone indicates a number of changes in the sixty year period which are of extreme economic significance to the State. It compares the progress of the nation and of Maryland in their transition from economies in 1870 in which Agriculture was still of relatively high occupational importance to economies in 1930 in which the occupational importance of Agriculture had become relatively low due to declining agricultural and greatly increasing industrial employment; the extent to which the gainfully occupied population kept pace with the increase in total population and the constantly changing importance of Agriculture, Service Industry and Non-Service Industry as occupational fields. Some of these changes will now be discussed.



Changes for the entire 60 year period are shown in the following tabulations:

	<u>1870</u>		<u>1930</u>	
	<u>U.S.</u>	<u>MD.</u>	<u>U.S.</u>	<u>MD.</u>
Population - % Gainfully Occupied	33.5	33.1	39.8	41.2
Gainfully Occupied: Percent In;				
Non-Service Industries	22.4	24.5	31.4	34.9
Service Industries	<u>24.6</u>	<u>44.4</u>	<u>47.2</u>	<u>49.2</u>
All Industries	47.0	68.9	78.6	84.2
Agriculture	53.0	31.1	21.4	12.5

The percent of total population gainfully occupied increased in each decade, both nationally and in Maryland, from 1870 - 1910 and declined in both in the next two decades. Following 1880 Maryland's percentage was slightly higher than the national.

Throughout the entire period Industry continued to be of greater importance in Maryland than it was in the nation. In 1870, 68.9% of Maryland's gainfully occupied were in the industry classifications while only 47.0% of the nation's gainfully occupied were in these classifications. In 1930 however, the comparable percentages were 84.2% for Maryland and 78.6% for the nation. Looking at this in another way, Maryland industrial occupations changed in importance from 68.9% to 84.2% while the national change was from 47% to 78.6%. In 1870 Maryland was much further advanced in her transition from an agricultural economy to an industrial economy than the nation and one might say that Maryland continued to be industrial while the nation became industrial.

The increasing importance of industrial occupations in the nation was most pronounced in the service occupations which increased from 24.6% of the total

gainfully occupied in 1870 to 47.2% in 1930 as contrasted to an increase in the Non-Service occupations from 22.4% in 1870 to 31.4% in 1930.

In Maryland this was reversed as the increase in importance of the industrial occupations was greatest in the Non-Service occupations which increased from 24.5% of the total gainfully occupied in 1870 to 34.9% in 1930 compared with the smaller increase in the importance of the Service occupations from 44.4% in 1870 to 49.2% in 1930.

Although the increase in the importance of Maryland's industrial occupations was small compared with the great national increase in these occupations it was in no sense an insignificant change. This is true because of two phenomena, the first of which was that Maryland's increase was mostly confined to the Non-Service occupations as shown in the previous paragraph and the second of which was that as the industrial occupations increased and the gain was largely concentrated in the Urban Section of Baltimore City and the two Rural Industrial Sections I-2 (Baltimore County) and I-3 (Anne Arundel and Prince Georges Counties). Or in other words the greater part of the increase in industrial occupations in the State occurred in these three Industrial Sections.

A conclusion that the industrial growth of Maryland was confined to the Industrial Sections because the population growth was confined mostly to these Sections would not be justified. Such evidence would be presumptive, but not conclusive. We must look to the Industry studies of the third phase for the conclusive evidence, for these Industry studies must, among other things, show any important "shift" of location of the predominant plants of such Industries. A preliminary study indicates that no such shift of magnitude has occurred; consequently, our tentative conclusion is that industrial expansion for the period under consideration has been mostly confined to the Industrial Sections

defined in the Base Pattern of 1930. This is equivalent to saying that there has been no change in the boundaries of the Industrial Sections established in the Base Pattern of 1930. There is nothing surprising in this conclusion for as the Non-Service Industries grew in these Industrial Sections, the required services grew with them and the tendency of productive industries is to locate where adequate services are available.

This discussion of occupational changes has developed that the importance of the service occupations in Maryland had increased little in the sixty year period. From the increase in population and in Non-Service Industry; and from other statistical studies we would be justified in expecting a substantial increase in the Intra-Sectional Service Industries and since there was only a small increase in all Service Industries there is an indication of a considerable decline in importance of what we defined in Part II as the Extra-Sectional Services.

This indicated decline in importance of the Extra-Sectional Services will be discussed further in Part IV.

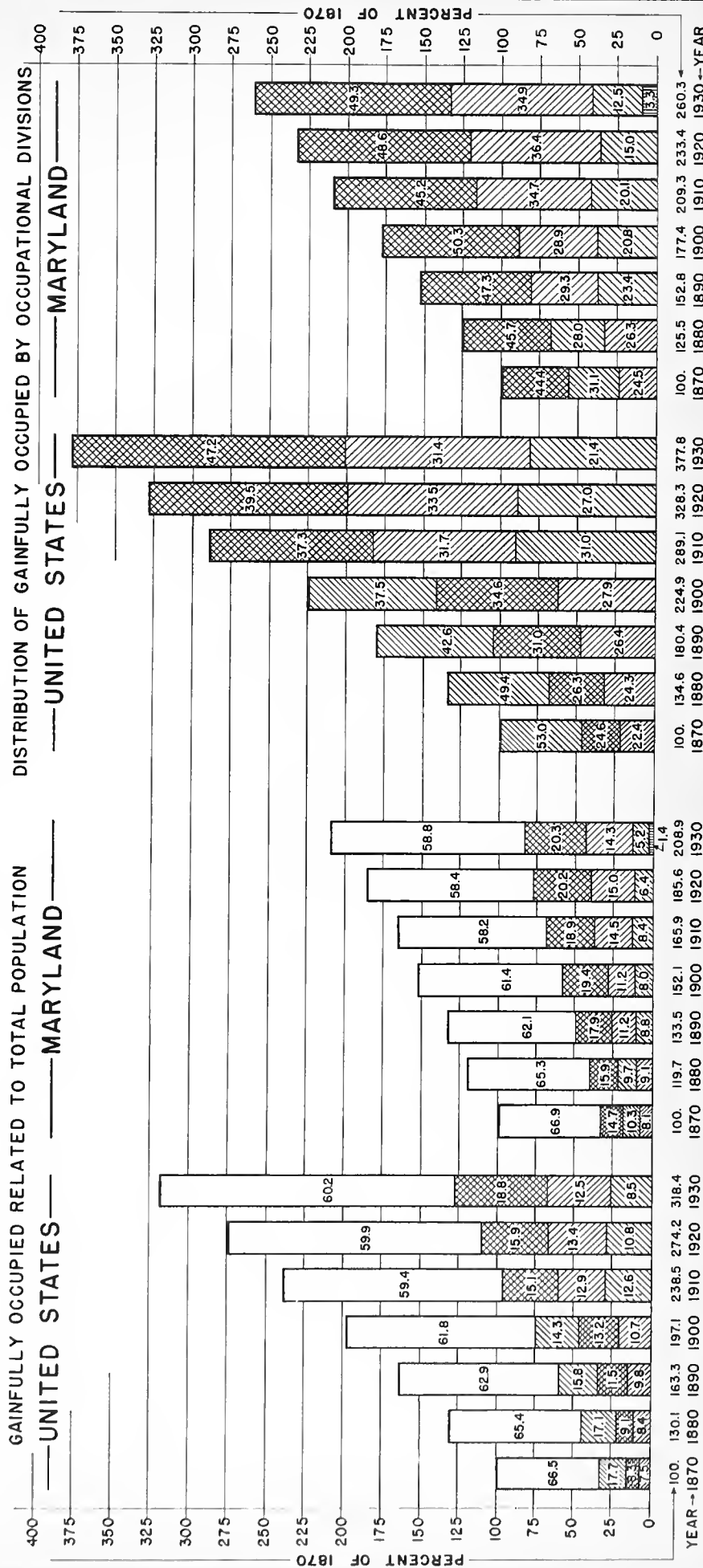
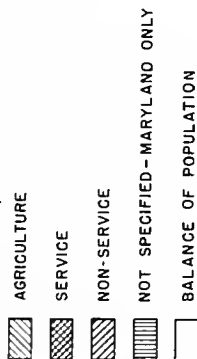
By way of summary we might recapitulate the most significant changes in Maryland's population during the 1870-1930 period as follows:

1. The percentage of the population gainfully occupied increased more in Maryland than in the United States as a whole.
2. Maryland has been more highly industrialized than the United States as a whole throughout the period.
3. Maryland increased more in the Non-Service Industries than in the services while the reverse was true for the United States.

EXHIBIT 8

CHANGES IN THE ECONOMIC STRUCTURES OF THE UNITED STATES AND MARYLAND SHOWING CHANGES IN POPULATIONS AND OCCUPATIONS FROM 1870 TO 1930

HEIGHT OF EACH BAR REPRESENTS PERCENT OF 1870.
DIVISIONS OF EACH BAR ARE THE PROPORTIONS, IN PERCENTAGES, OF THE GAINFULLY
OCCUPIED AND BALANCE OF POPULATION, AS INDICATED BY THE SYMBOLS BELOW:



CHAPTER 4

THE PREDOMINANT INDUSTRIES OF THE STATE - THEIR INTRA-STATE CHANGE IN IMPORTANCE - THEIR INTER-STATE CHANGE IN IMPORTANCE PERIOD 1909-1937

This chapter relates to observation of:

1. Changes in the Industries included among the Predominant Industries of the State.
2. Changes in the degree of predominance (importance) of such Industries (Intra-state changes in importance).
3. Changes in the national degree of importance of each Predominant Industry of the State (Inter-state change in importance).

The first item refers to changes in the Industries included in the Predominant Industry group. Such changes result from advances or declines in the importance of Industries which either brings them into the Predominant Industries group or eliminates them from this group. There has been no evidence developed, in our Survey, of this type of change having taken place in Maryland since 1930 with one exception. This exception relates to recent developments in Aircraft and Parts which point to this Industry having resumed predominant importance in Section I-2 since 1930.

The changes under item 2, relating to intra-state change in importance of Predominant Industries are developed graphically for certain Predominant Manufacturing Industries of Maryland for which Census of Manufactures data are available⁽¹⁾, in Exhibit 9 on page 25. This exhibit tells an interesting story, as it shows, from an employment standpoint, the changing importance of these Maryland Manufacturing Industries for twenty-one years prior to and seven years subsequent to the date of our Base Pattern (1930).

(1) Changes in Industries not included in this Exhibit are considered separately using the Bureau of Labor Statistics series.



Exhibit 9a, which is presented here merely for the sake of convenient reference in future studies, develops a similar picture from the standpoint of wages.

We might comment here on the relative constancy of "importance of the Clothing Industry and the Food and Allied Products Industry, as contrasted with the more varied importance of most of the other Industries. Of these other Industries, the performance of Other Iron and Steel is the most striking, as it moved from third position (importance 14.2%) in 1909 to first position (importance 33.6%) in the boom year of 1919. Subsequent to 1919 it has very consistently maintained second or third position. It is interesting to note however, that subsequent to 1919 this Industry's "position low" was 14.6% in 1935. It never receded after 1919 to the low importance it held in 1909 of 14.2%.

Item 3, page 21 relates to the development of the changing competitive position of Maryland's Predominant Industries with the same Industries in other states. To illustrate this item and show the method of denicting inter-state change in importance of a Predominant Industry of Maryland and incidentally the State's changing competitive position among other states the Clothing Industry has been selected. Exhibit 10, on page 27, shows graphically inter-state changes in employment, while Exhibit 11, on page 29, shows inter-state changes in total wages. Similar charts are being made for the other Predominant Industries of the Manufacturing Industry Group.

Obviously the development of the changing position of Maryland's Predominant Industries in the national pattern as illustrated by Exhibits 10 and 11, becomes a necessary preparatory step to the diagnostics of observed Industry change to be described in Part IV of this series. To illustrate this, some

particular Industry of a State may have been shown to be contributing less and less to employment and income on the State. Such a condition might be due to one or both of two "causes":

1. A decline of the Industry nationally.
2. A "loss of position" of the local Industry in its national field.

No "causal determination" is possible without a continuing knowledge of both of the above conditions. Exhibits 10 and 11 illustrate the method of continuously indicating the second of these conditions, using the Clothing Industry of Maryland as an example.

Maryland coal provides an illustration of an Industry contributing less and less to both employment and wages in the State. Both of the above "causes" have contributed to this condition, for the Bituminous Coal Industry has declined as it "lost position" in the "fuels group" while coincidentally the Maryland coal fields have lost production position in the Bituminous Coal Industry.

Referring further to Exhibit 10, which relates to inter-state change in employment in the Clothing Industry, we call attention to several interesting and significant occurrences. First it shows the high concentration of employment in the Clothing Industry in a very small number of States. The national distribution of the Clothing Industry (Exhibits 12b and 12c, Part II) is such that it has predominant significance in Sections lying in thirty-four of the forty-eight states. But an inspection of Exhibit 10 of this release shows that throughout the entire period (1909-1935) approximately 85% of the national employment in this Industry occurred in about eleven states. In this Industry Maryland has

rather constantly maintained an important position among the states, as it varied between a high position of fifth (in 1909) and a low position of eighth (in 1935). The high and low of Maryland employment expressed in percent of national employment, however, were respectively 4.4% (in 1925) and 3.2% (in 1935). Contrast this performance of Maryland Clothing with that of several other states as follows:

New York, although maintaining first position, has lost heavily in "importance" as it very consistently declined from 50.2% (in 1909) to a low of 31.6% (in 1933); rising only to 35.1% (in 1935).

Pennsylvania consistently maintained second position through the period except in 1919 when it dropped to third position. In "importance", it varied between the relatively narrow limits of 8.7% (in 1919) and 12.6% (in 1935).

New Jersey's performance was striking as it rose steadily from seventh position in 1909 (importance 2.9%) to third position in 1935 (importance 7.3%).

This chapter has concerned itself with only three kinds of change, those set forth in its opening paragraph. It has been a brief chapter, yet it constitutes an extremely important part of the continuing Economic Survey of Maryland. Briefly stated, it begins to define Maryland's changing productive position in the field of inter-state commerce.

Again it shows as a Maryland Industry loses position, specifically, the states that are gaining position. It also shows, of course, the converse of this. The necessity of these steps, if later we are to explain the causes of such gain or loss in position is self-evident.

130
INDEX
1929=100

EXHIBIT-9

ECONOMIC STUDIES OF MARYLAND, PART III

CHANGING IMPORTANCE
OF
SELECTED INDUSTRIES
OF
MARYLAND
IN
EMPLOYMENT

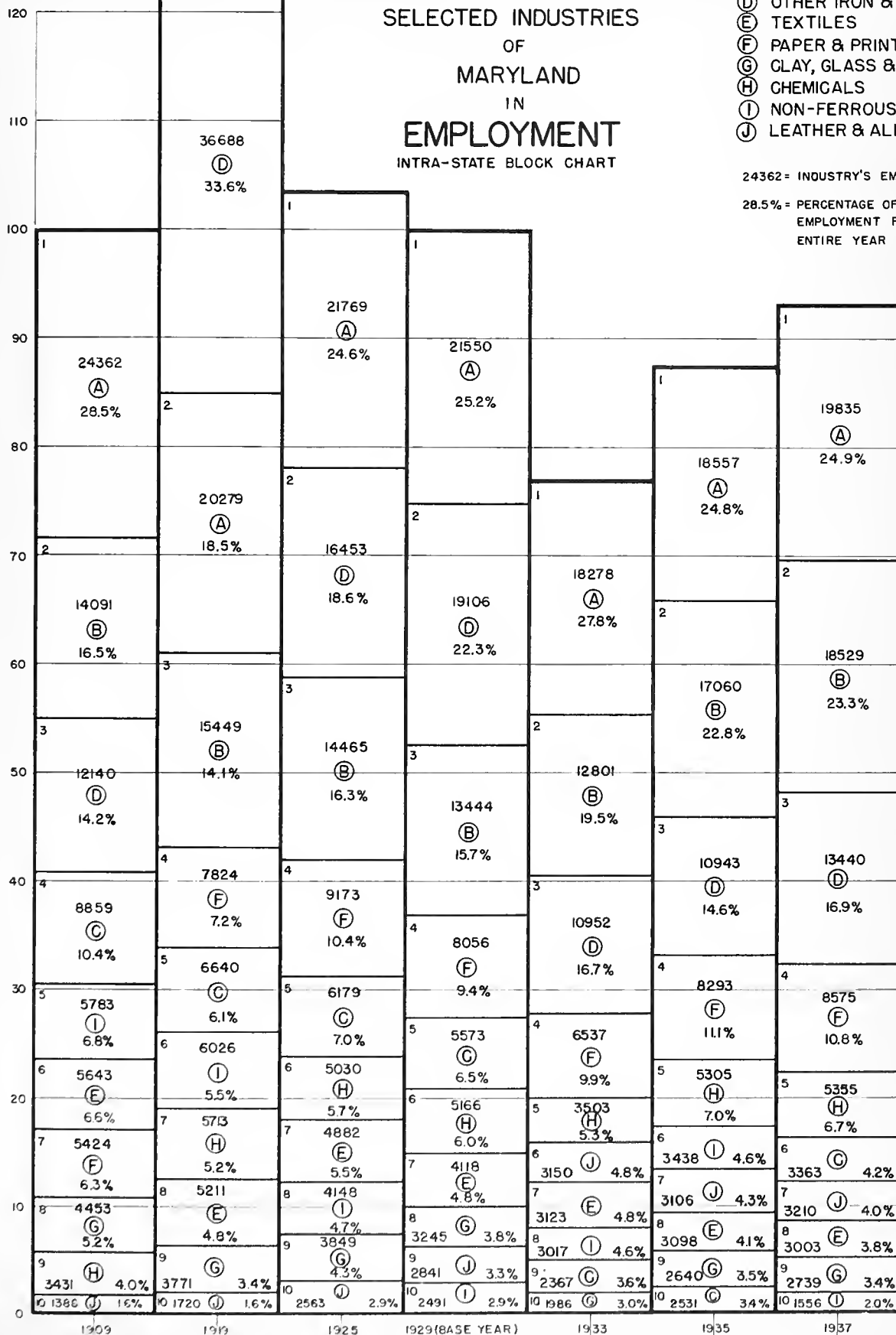
INTRA-STATE BLOCK CHART

LEGEND.

- (A) CLOTHING
- (B) FOOD & ALLIED
- (C) LUMBER & ALLIED
- (D) OTHER IRON & STEEL
- (E) TEXTILES
- (F) PAPER & PRINTING
- (G) CLAY, GLASS & STONE
- (H) CHEMICALS
- (I) NON-FERROUS METALS
- (J) LEATHER & ALLIED

24362 = INDUSTRY'S EMPLOYMENT

28.5% = PERCENTAGE OF TOTAL
EMPLOYMENT FOR
ENTIRE YEAR



ELAPSED TIME 10 YEARS 6 YEARS 4 YEARS 4 YEARS 2 YEARS 2 YEARS

MARYLAND STATE PLANNING COMMISSION

EXHIBIT - 9A

ECONOMIC STUDIES OF MARYLAND, PART III

CHANGING IMPORTANCE

OF

SELECTED INDUSTRIES

OF

MARYLAND

IN

WAGES

INTRA-STATE BLOCK CHART

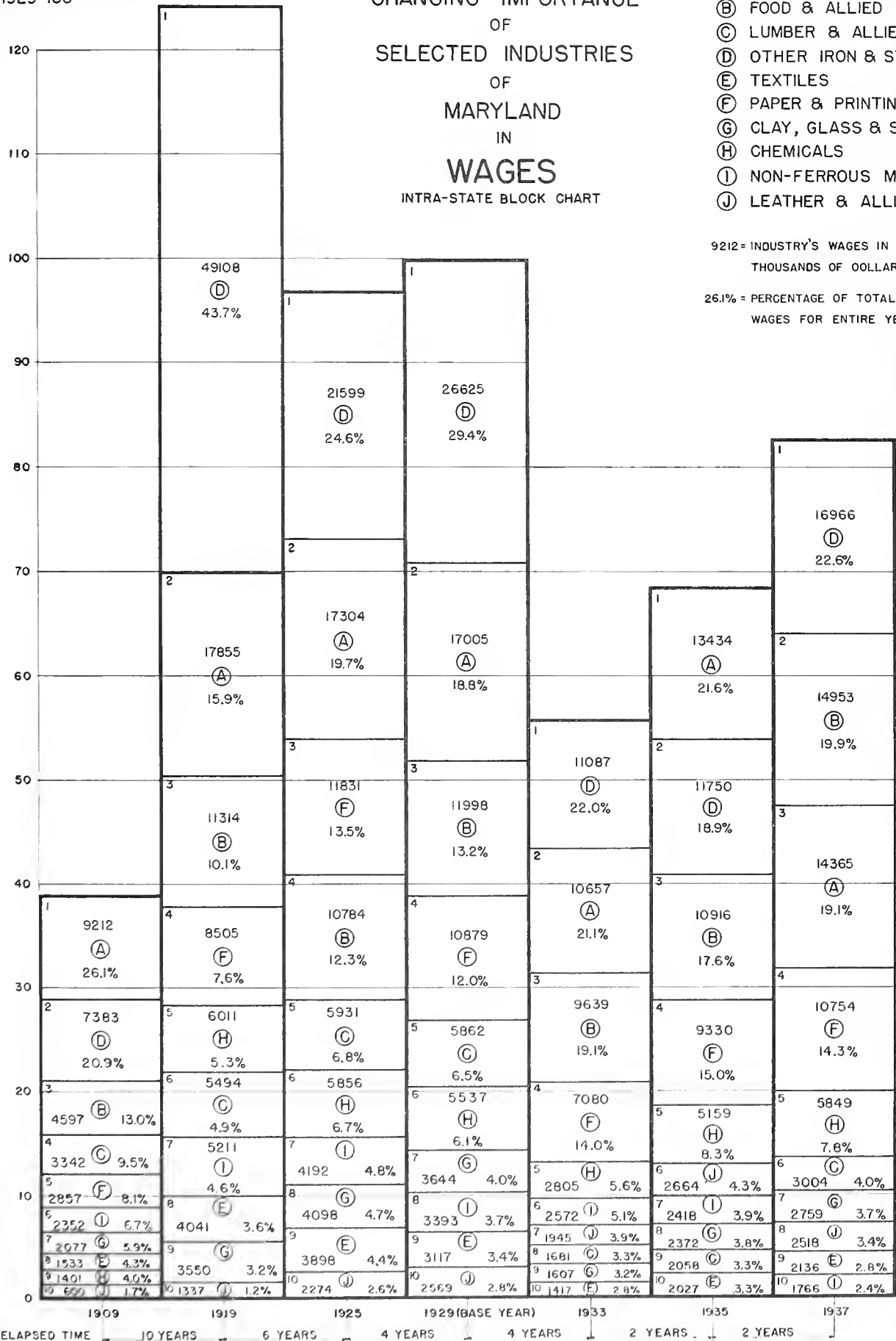
LEGEND

- (A) CLOTHING
- (B) FOOD & ALLIED
- (C) LUMBER & ALLIED
- (D) OTHER IRON & STEEL
- (E) TEXTILES
- (F) PAPER & PRINTING
- (G) CLAY, GLASS & STONE
- (H) CHEMICALS
- (I) NON-FERROUS METALS
- (J) LEATHER & ALLIED

9212 = INDUSTRY'S WAGES IN
THOUSANDS OF DOLLARS

26.1% = PERCENTAGE OF TOTAL
WAGES FOR ENTIRE YEAR

INDEX
1929=100



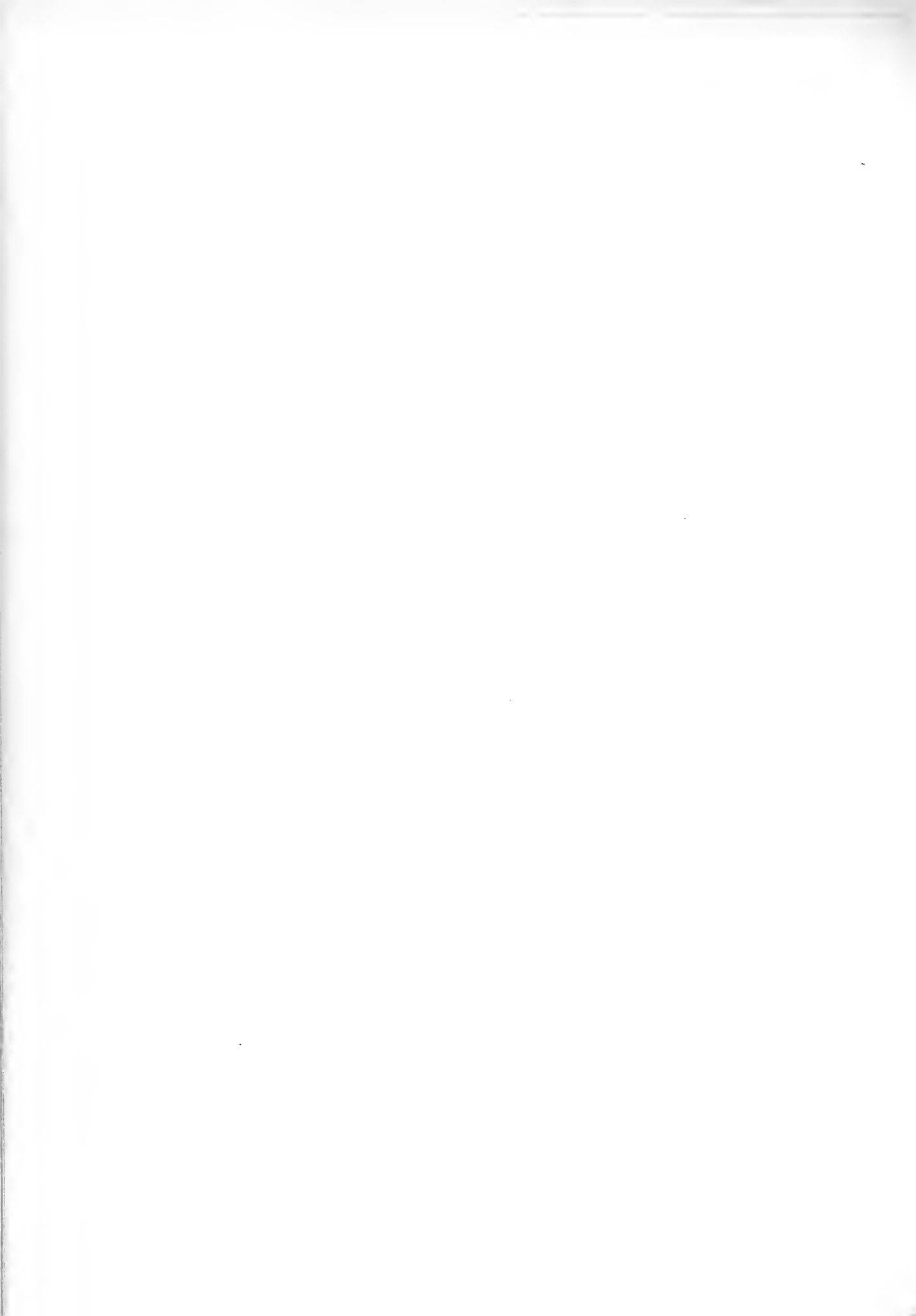


EXHIBIT-10
ECONOMIC STUDIES OF MARYLAND, PART III

CLOTHING
NATIONAL TRENDS
AND
PER CENT DISTRIBUTION BY STATES
(STATES IN EACH YEAR ARRANGED IN ORDER OF MAGNITUDES)
EMPLOYMENT

INTER-STATE BLOCK CHART

INDEX
1929=100

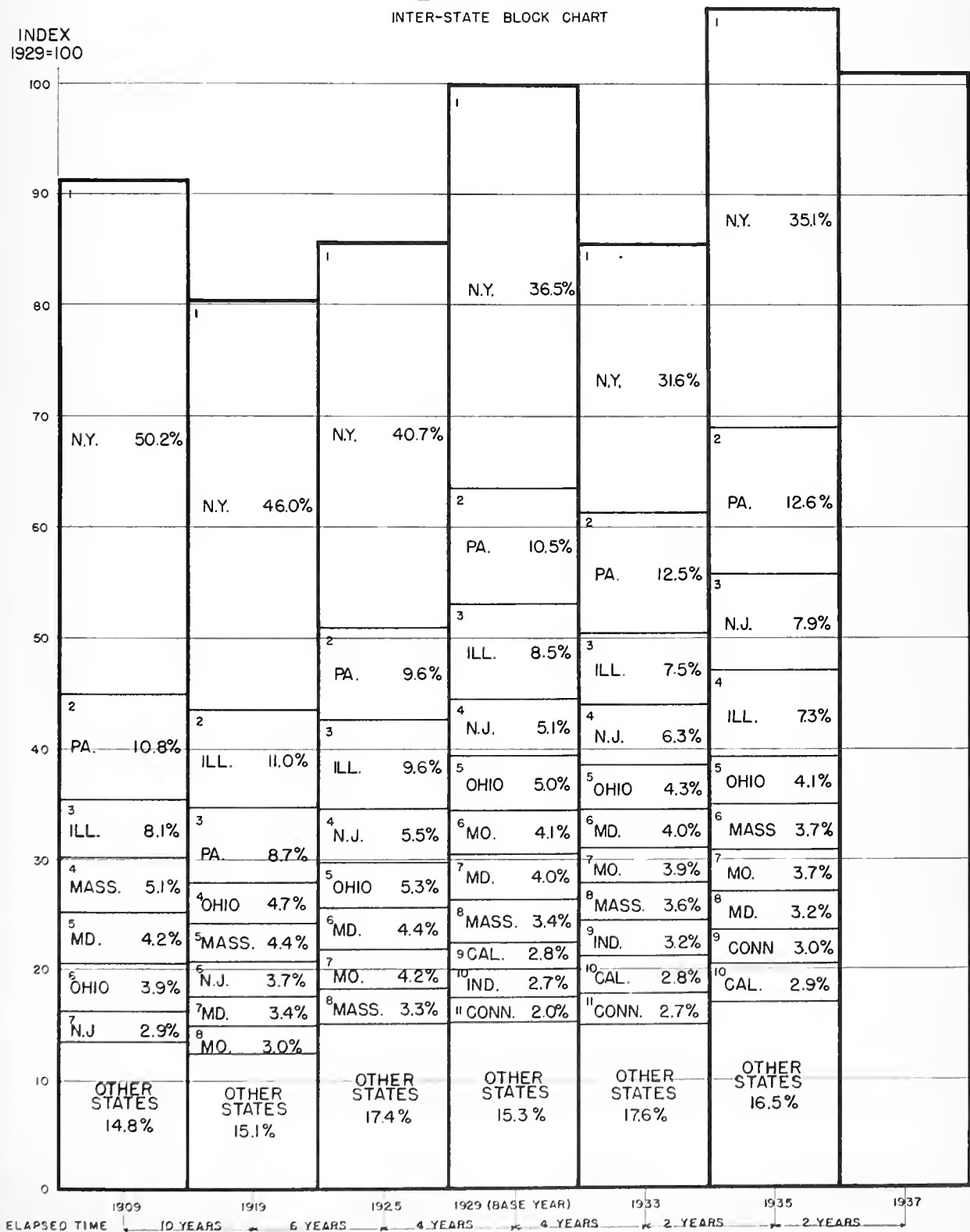
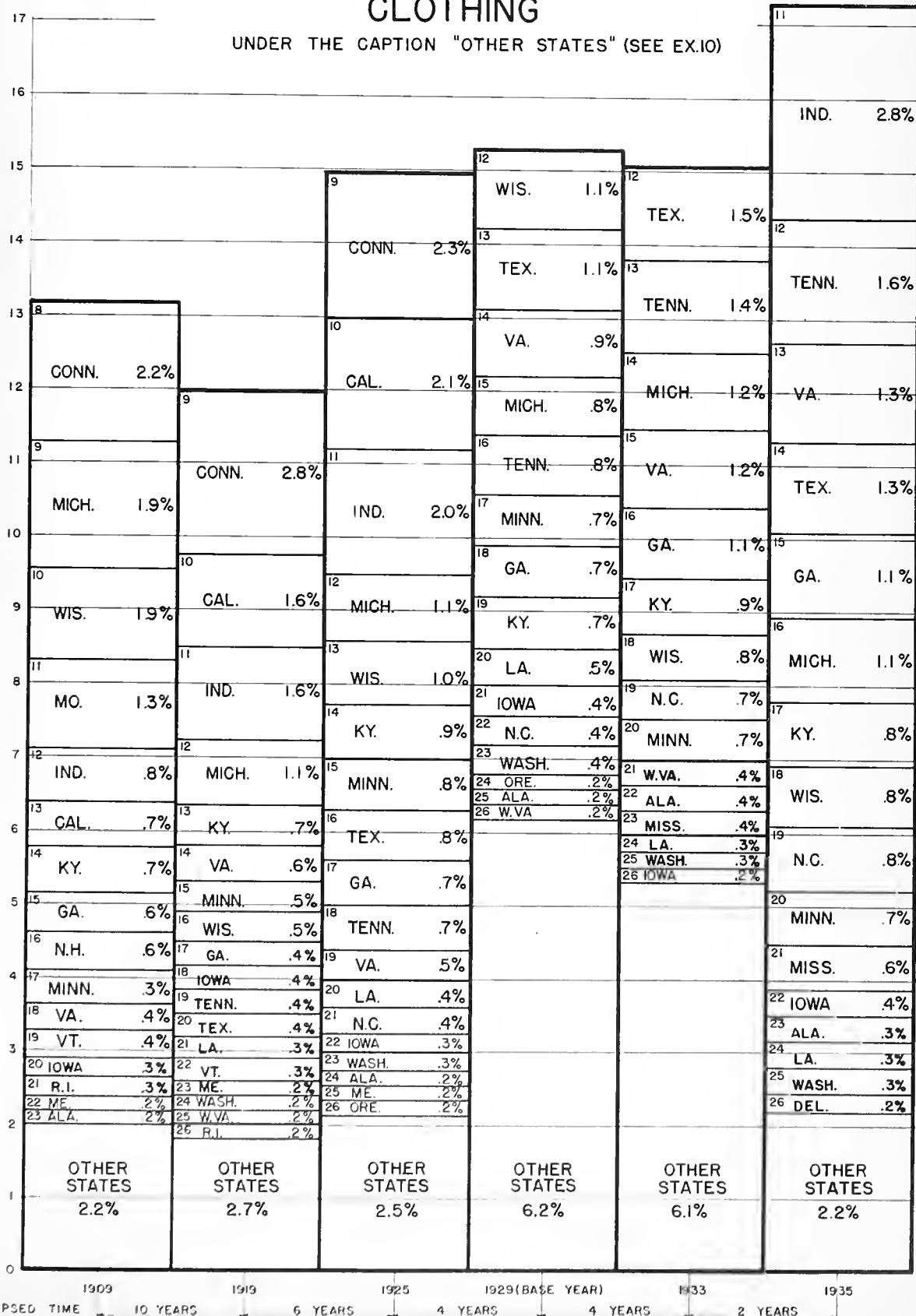


EXHIBIT-10 CONT'D
ECONOMIC STUDIES OF MARYLAND, PART III

DISTRIBUTION OF
EMPLOYMENT
IN

CLOTHING

UNDER THE CAPTION "OTHER STATES" (SEE EX.10)



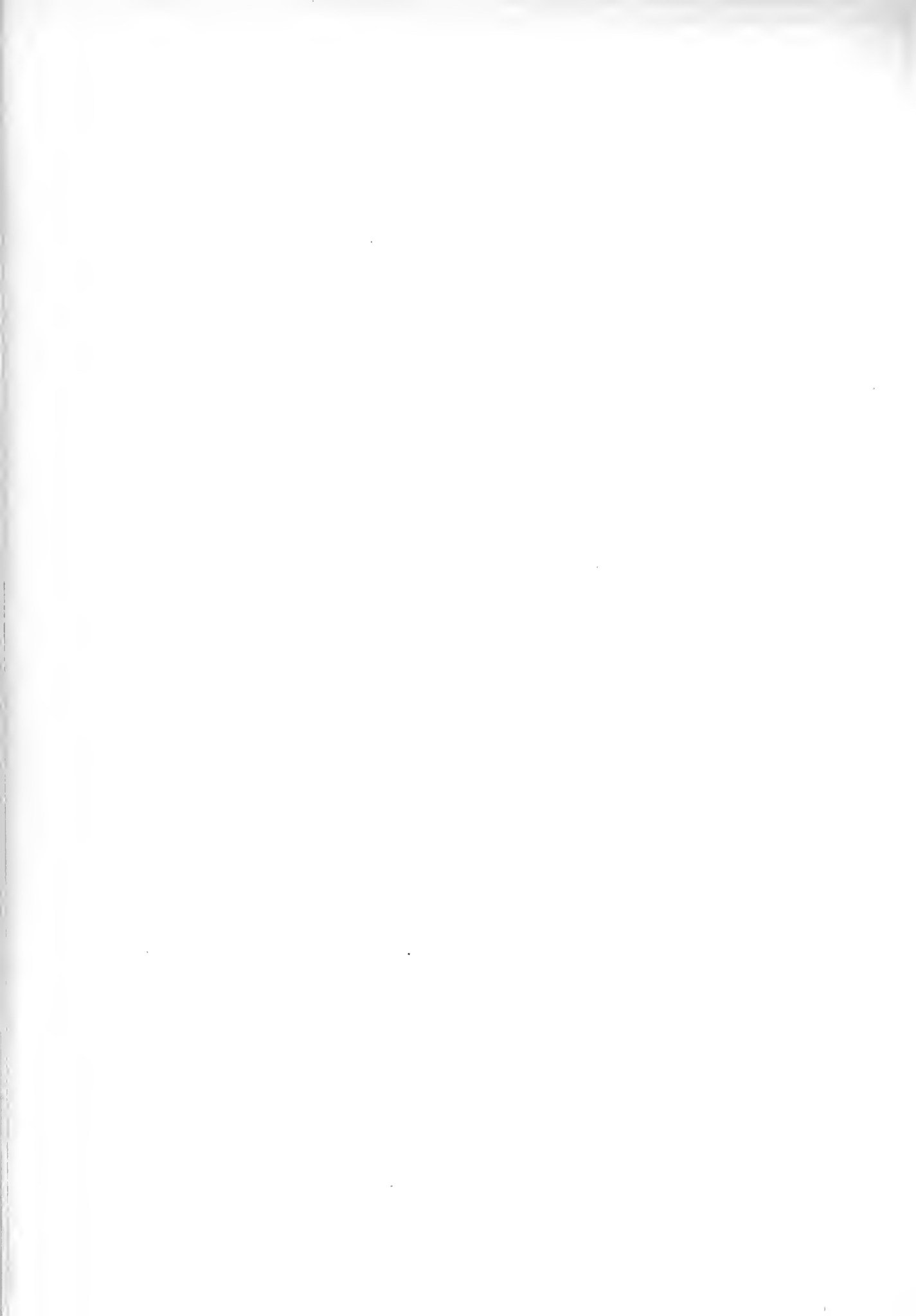


EXHIBIT-11

ECONOMIC STUDIES OF MARYLAND, PART III

CLOTHING
NATIONAL TRENDS

AND

PER CENT DISTRIBUTION BY STATES

(STATES IN EACH YEAR ARRANGED IN ORDER OF MAGNITUDE)

WAGES

INTER-STATE BLOCK CHART

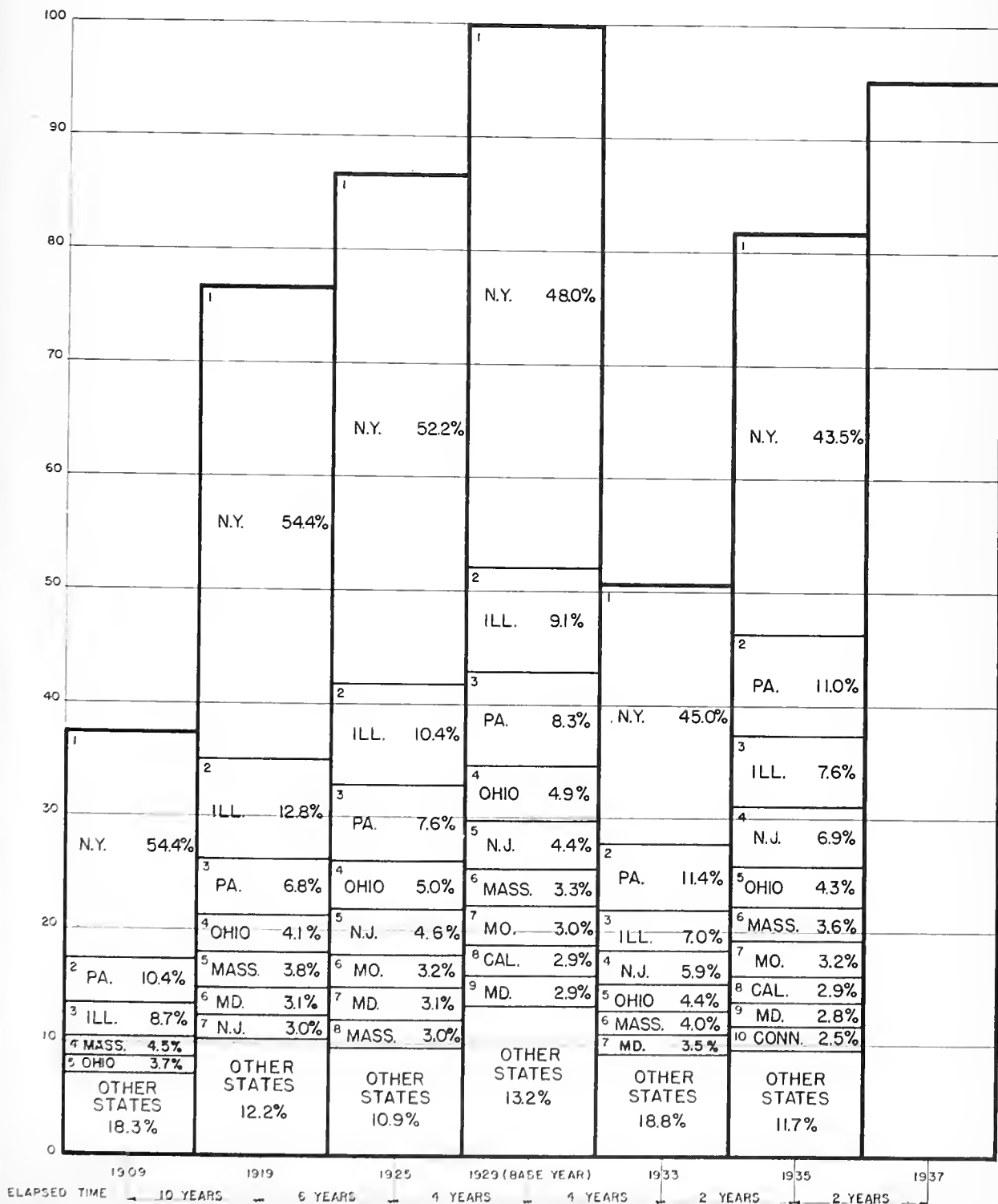
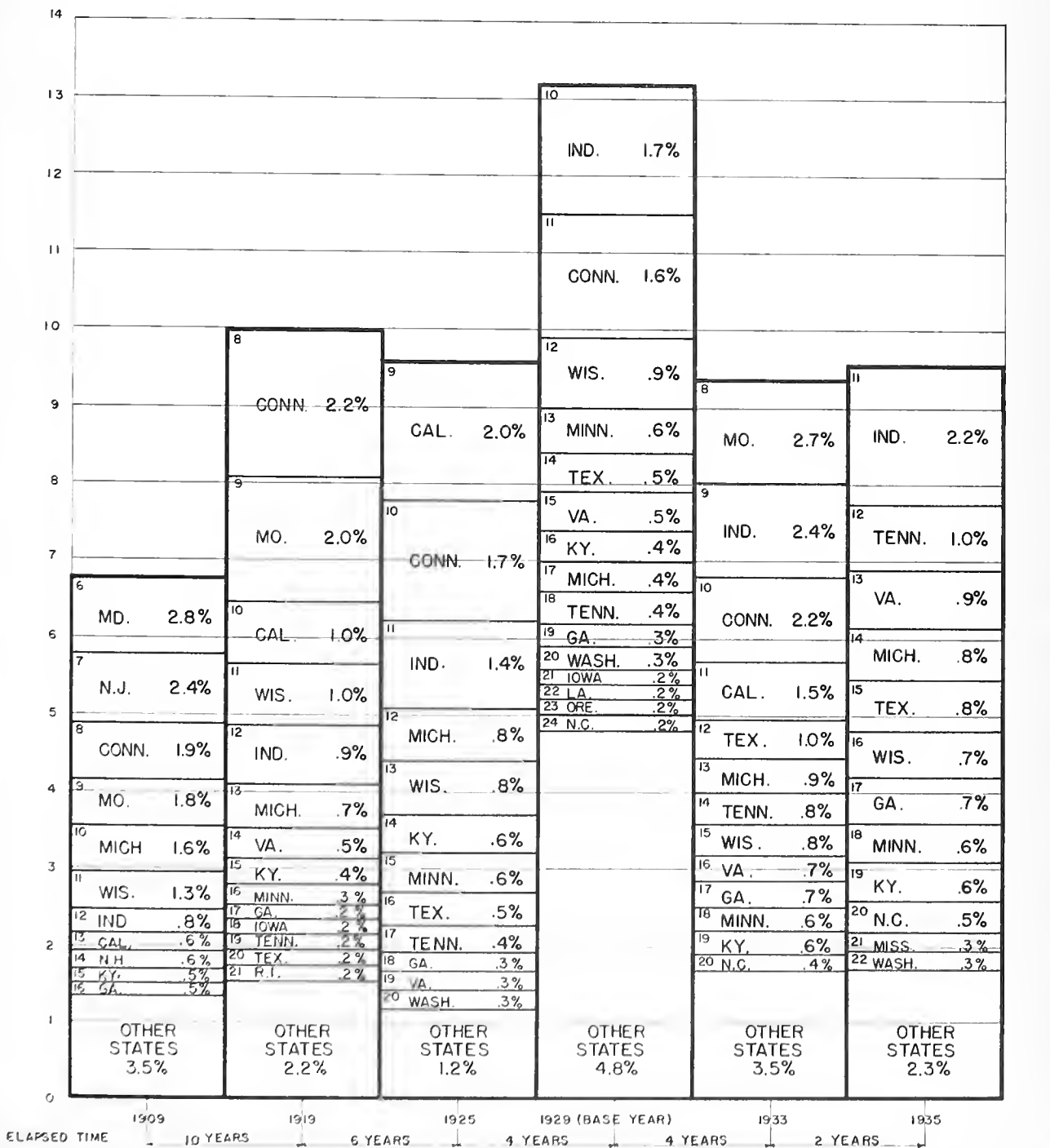
INDEX
1929=100

EXHIBIT-II CONT'D
ECONOMIC STUDIES OF MARYLAND, PART III
DISTRIBUTION OF
WAGES
IN
CLOTHING
UNDER THE CAPTION "OTHER STATES" (SEE EX.II)



CHAPTER 5

THE MANUFACTURING INDUSTRIES OF MARYLAND - CHANGES IN EMPLOYMENT, WAGES, VALUE OF PRODUCTS AND VALUE ADDED BY MANUFACTURE RELATED TO NATIONAL CHANGES IN THE SAME INDUSTRIES - SECULAR AND CYCLICAL CHANGES - PERIOD 1909 - 1937

The great and growing importance of the manufacturing industries of Maryland to the economy of the State and the Economic Sections of the State, fully justifies a special chapter devoted to their changing characteristics.

In the period 1870 - 1930, Maryland's population increased 108.9% while the gainfully occupied increased 160.3%. In 1870, 33.1% of the population were gainfully occupied as compared to 41.2% in 1930. Coincidentally, the number gainfully occupied in the Non-Service or Productive occupations increased 306% and in the Service occupations 189.9%. In 1870 only 24.5% of those gainfully occupied were in the Non-Service or Productive industry classifications as compared to 34.9% in 1930. This high increase in the Non-Service occupations clearly indicates the growing importance of the Productive Industries to the State.

In the Base Pattern of Maryland, as of 1930, fifteen Productive Industries were defined as the Predominant Industries of the State. They were listed in the order of their importance (occupational importance) on page 19 of Part II.

Of these fifteen Predominant Industries of Maryland, twelve come under the classification of Manufacturing Industries. They are:

- Clothing
- Other Iron and Steel
- Food and Allied
- Blast Furnaces and Steel Rolling Mills
- Chemical and Allied
- Paper, Printing and Allied
- Lumber and Allied
- Non-Ferrous Metals
- Textiles
- Clay, Glass and Stone
- Automobile Factories
- Leather and Shoes

Three Predominant Industries of Maryland, which are not classified as manufacturing, are:

Extraction of Minerals (Coal)
Building
Forestry and Fishing

The Census of Manufactures gives national statistics for all twelve of the Manufacturing Industries but shows Maryland statistics for only ten; "Blast Furnaces and Steel Rolling Mills" and "Automobile Factories" being omitted.⁽¹⁾ Fortunately the Commission's study of the Iron and Steel Industry of Maryland⁽²⁾ supplies us with the information of "change" in this extremely important Industry.

Related changes in Maryland and national coals are available from a national study of the coal Industry prepared under the sponsorship of the Research Division of the F.E.R.A.⁽³⁾ and a preliminary study of Maryland prepared under the same sponsorship.

National trends of the Building Industry are available but Maryland trends in this Industry have not been developed to date. Because of its importance, both to the State and Economic Sections of the State, an "Industry Study" of the Building Industry in Maryland is contemplated.

The remaining Predominant Industry of Maryland, Forestry and Fishing (practically confined to Fishing), appearing as of Predominant significance in Rural Industrial Section I-3, is of minor importance to the Section.

The changes in Maryland's Blast Furnaces and Steel Rolling Mills Industry and Coal Industry will be discussed in Chapter 7 of Part IV.

(1) To avoid disclosures regarding individual operations the Census Bureau does not publish data on local Industries comprising less than four establishments. Employment and Wages indexes for these Industries are available from the Bureau of Labor Statistics.

(2) "Report on Iron and Steel Industry of Maryland", by H.A. Grine, published by the Commission in Nov. 1938.

(3) "Bituminous Coal Industry with a Survey of Competing Fuels," by W.C. Trapnell and Ralph Hiley, F.E.R.A., Dec. 1935.



The fifteen Predominant Industries of our Base Pattern account (in 1930) for 304,527 or 83.3% of the total gainfully occupied in Non-Service Industries and 149,126 or 75% of these are accounted for by the Manufacturing Industries, clearly indicating the great importance of this Industrial group in the Base Pattern of 1930.

In this chapter, the trends of:

- Employment
- Wages (total)
- Product Value
- Value Added by Manufacture

are developed; first for Maryland's Manufacturing Industries collectively; and second, for the several principal Industries of the Manufacturing group. All of the "indications" of change in this chapter, with the single exception noted later (changes in Blast Furnaces and Steel Rolling Mills) are derived from United States Census of Manufactures data.

The Manufacturing Industries Collectively:

The "changes" of employment and wages, in this Industry group are shown graphically in Exhibit 12, page 40; those of Product Value and Value Added by Manufacture in Exhibit 12a, page 41. In each case the time period considered is from 1921 - 1937, a period within which the data are comparable.

In each of the four plots, 1921 is selected as the base year, and in each case the trend of the Maryland group of Manufacturing Industries is related to that of the national group of Manufacturing Industries.

In the latter part of this chapter which relates to the changes of the several principal Industries of the Manufacturing Industry group, we have, for analytic purposes, defined the time period from 1919 - 1929 as the "'19-'29 cycle" and the time period from 1929 - 1937 as the "'29-'37 cycle". The former cycle extends from the peak year of 1919 to the peak year of 1929, while the latter cycle extends from the peak of 1929 to the peak of 1937.



Since the low year of the earlier cycle occurred in 1921, it will be evident that the four plots of Exhibits 12 and 12a span the recovery phase of the earlier cycle and both the recession phase and the recovery phase of the later cycle. If the reader will keep this in mind as he examines these four plots, he should readily sense the excellent relative stability of the Maryland Industries, as indicated by the four graphs of Exhibits 12 and 12a.

It will be observed that in the changes of Employment, Wages, and Value Added by Manufacture, in no case during the 1921 - 1929 recovery did the Maryland group reach the 1929 "boom highs" of the national group, and in the '29-'37 cycle in no case did the Maryland group reach the '33 "recession lows" of the national group, an indication of the better cyclical stability of the Maryland group, as evidenced by the lesser magnitude of its cyclical swings. But the same graphs also indicate a better secular or long-time characteristic for the Maryland than for the national group, for it will be noted that in the changes of Employment, Wages and Value Added by Manufacture in the '29-'37 cycle, the Maryland Industries reached '37 "highs" in excess of their '29 "highs". In contrast with this, the '37 "highs" of the national group were below their '29 "highs".

But in the case of "Product Value" the Maryland group showed a wider "cyclical swing" than the national group, rising to a '37 peak equal to its '29 peak, as contrasted, in the case of the national group, with a '37 peak materially less than the '29 peak.

The Manufacturing Industries Severally:

The exhibits illustrating this part of the chapter run continuously from 12 and 12a to 24 and 24a. They appear on pages 42 to 65 immediately following this chapter.

It will be noted that each chart shows two continuous plots or graphs, one from 1909 - 1929 called the "Secular Period", and one from 1929 - 1937 called the "'29-'37 cycle". In each graph is shown both the Maryland trends and the national trends of the Industry under consideration. With one exception, all of the plots are derived from the statistical material of the U. S. Census of Manufactures. The exception is in the case of the Industry "Blast Furnaces & Steel Rolling Mills" (Exhibits 16 and 16a). This Industry in Maryland is essentially entirely owned and operated by one corporation. It has been the policy of the Census Bureau not to disclose separately the State figures for such an Industry, and therefore the Maryland series for "Blast Furnaces & Steel Rolling Mills" are not made available in the U. S. Census of Manufactures. The Commission is adhering to the same policy in not releasing figures of wages and employment in such cases, although such figures are available in other statistical series. It is for this reason that "Blast Furnaces & Steel Rolling Mills" does not appear in Exhibit 9, page 25.

The Commission secured permission to release indices of employment and wages in this Maryland Industry and did so in its report on the Steel Industry⁽¹⁾. These have been utilized and the Maryland and national trends obtained from this source are shown for both employment and wages in the '29-'37 cycle on Exhibit 16, page 42.

The reader may get some idea of the importance of this Industry, Blast Furnaces & Steel Rolling Mills, to the economy of the State and Sections of the State by referring to pages 19 and 20 of Part II. The remarkably good secular and cyclical characteristics of this Maryland Industry are clearly set forth in the Steel Report⁽¹⁾.

(1) "The Iron & Steel Industry" of Maryland by Harry A. Grine, published by the Commission in November, 1938.

The Census of Manufactures does not disclose the Maryland series of another of the Manufacturing Industries, "Automobile Factories." In this case, only national trends have been shown on Exhibits 23 and 23a. Relatively, this Industry is not of great Sectional or State importance (see pages 19 and 20, Part II).

The complete time period of the various Industry charts (Exhibits 13 and 13a to Exhibits 24 and 24a) is from 1909 - 1937.

Exhibit 25, page 66 shows a division of this over-all time period into various periods designated as:

- Secular Period
- Terminal Period
- 1919-1929 Cycle
- 1929-1937 Cycle

This subdivision is solely for the purpose of classifying various kinds of changes occurring through the over-all period, in a manner that adapts them to the analytic processes used in the "Studies".

To enlarge somewhat on this, we are interested in two main classifications of change - "Secular" change and "Cyclical" change. Whether we are considering "change" of employment in an Industry; income in a community; total wages of an Industry; or whatnot, it is necessary, if our observations of change are to be applied to an economic analysis, to know, first, the long time (secular) trends of these factors, and second, certain recurring divisions of the factors from the long time or secular trend (cyclical variations).

At this stage of our analysis, we have elected to define the last two "cycles" of the over-all period (1909-1937) as:

1. The period between the "peaks" of 1919 and 1929, which we have called the "'19-'29 cycle."
2. The period between the "peaks" of 1929 and 1937 which we have called the "'29-'37 cycle."

The relatively long period (twenty years) preceding the '29-'37 cycle we have called the "Secular Period".

Thus, we propose in all cases to consider two kinds or classifications of change - secular change and cyclical change.

The method of indicating such kinds of changes may be explained by the following illustration.

If we are considering the factor of employment in some particular Industry and have observed that it was 30% greater in 1929 than in 1909, we would say that its "Secular Change" was +30.

If we had further observed that employment had declined in the last four years (1925-1929) of the Secular Period 10%, we would say that its "terminal change" was -10, for we have elected to call the last four years of the "Secular Period" the "Terminal Period."

It will be apparent, we presume, that while neither the "Secular Change" of +30 nor the "Terminal Change" of -10 is a "trend", the two, when considered together, "indicate" a secular trend for the Secular Period '09-'29 and thus give us an indication of the "Secular characteristics" of employment in this particular Industry.

To "indicate" the "cyclical characteristics", let us say, of the '29-'37 cycle, for employment in the same Industry, our procedure would be as follows.

If we had observed that employment had changed from 100% in 1929 (the base year of the cycle) to 65% at the time of the "recession low" of this Industry, we would say the "recession low" for employment in this Industry was 65⁽¹⁾, a recession of 35%. If we had further observed that employment in 1937 was 110% of the 1929 employment, we would say that "recovery" for employment in this Industry was $110 \div 65 = 1.692$ or 169.2%, a recovery of 69.2%.

These two observations of changes in the "cycle" together indicate the "cyclical characteristics" of employment in this particular Industry for this particular cycle.

A convenient summary of some of the significant interpretations of the series of "Employment Charts" of the ten Manufacturing Industries is presented in Exhibit 27, page 68, 68a and 68b of this Chapter.

The principal purpose of this exhibit is to "rate" employment in the ten selected Industries:

1. By secular performance.
2. By performance in the '19-'29 cycle.
3. By performance in the '29-'37 cycle.

The various "Industry Departures" by which this rating is accomplished are all derived from Exhibits 13 to 24a inclusive. The method of constructing Exhibit 27 is explained in Exhibit 27a, pages 69 and 70.

For special studies similar ratings can be established for Wages, Value of Products and Value Added by Manufacture.

(1) See footnote on page 68a.

The methods just described relating to secular and cyclical changes provide the means of expressing quantitatively the widely variant secular and cyclical characteristics of the several Predominant Industries of the State in the Manufacturing group. Similar methods give quantitative expression to the secular and cyclical characteristics of the other Predominant Industries as well as the Extra-Sectional Service Industries.

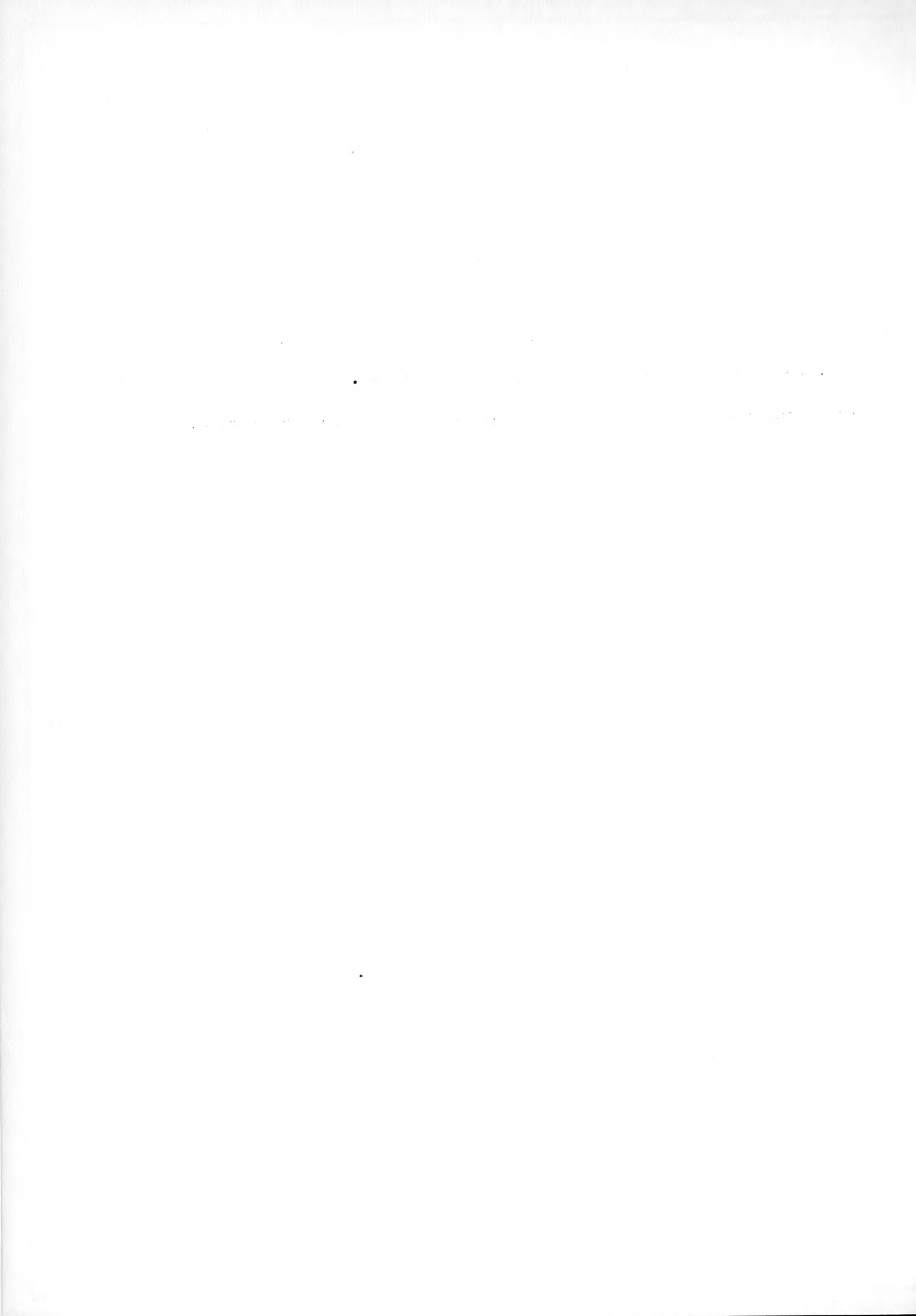
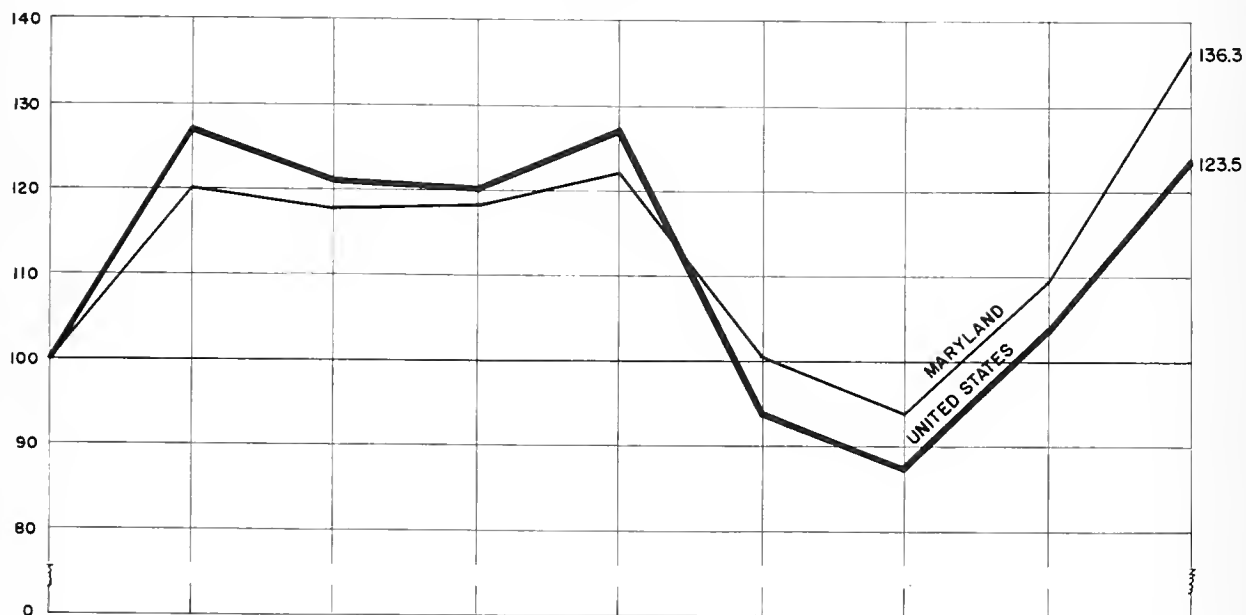


EXHIBIT-12

ECONOMIC STUDIES OF MARYLAND, PART III
MANUFACTURING INDUSTRIES COLLECTIVELY

EMPLOYMENT

(YEARLY AVERAGES)



WAGES

(YEARLY AVERAGES)

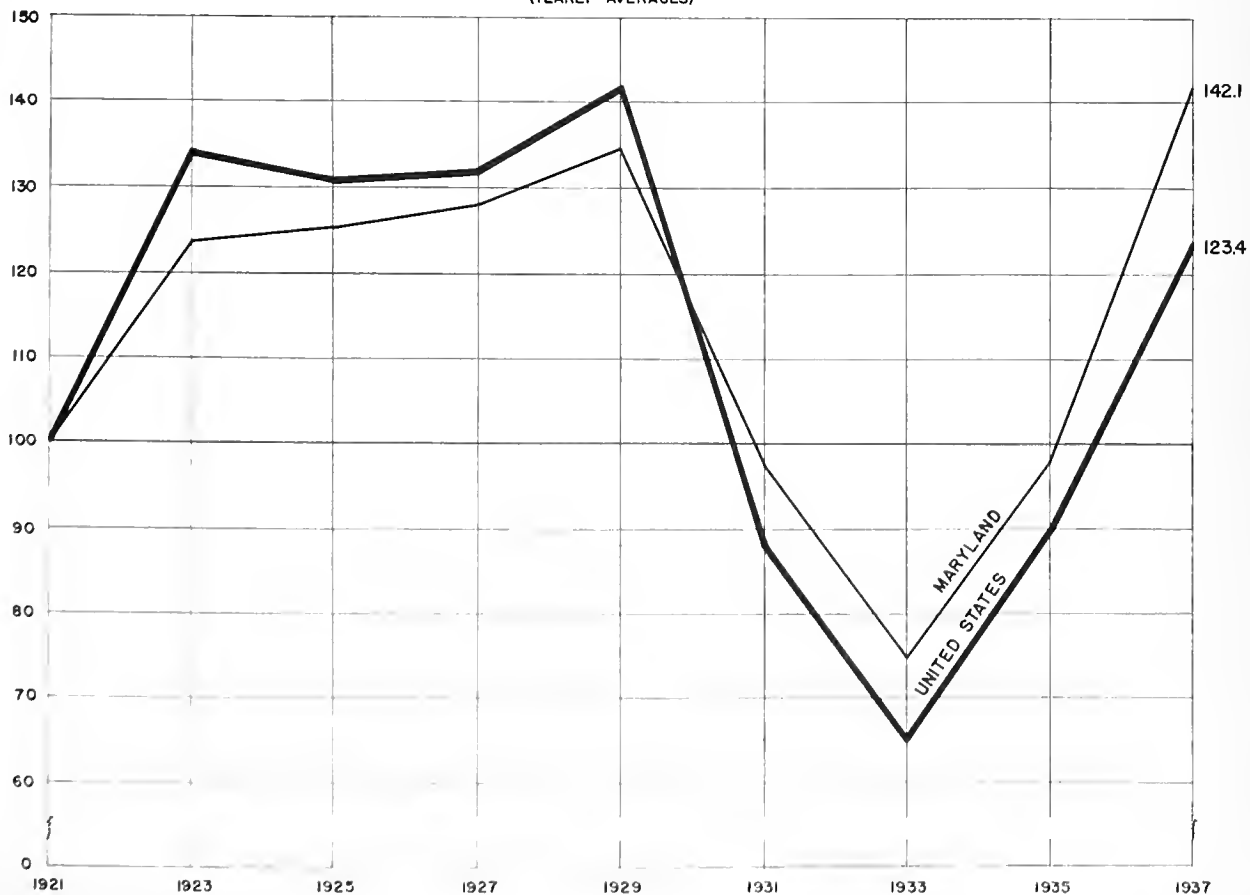
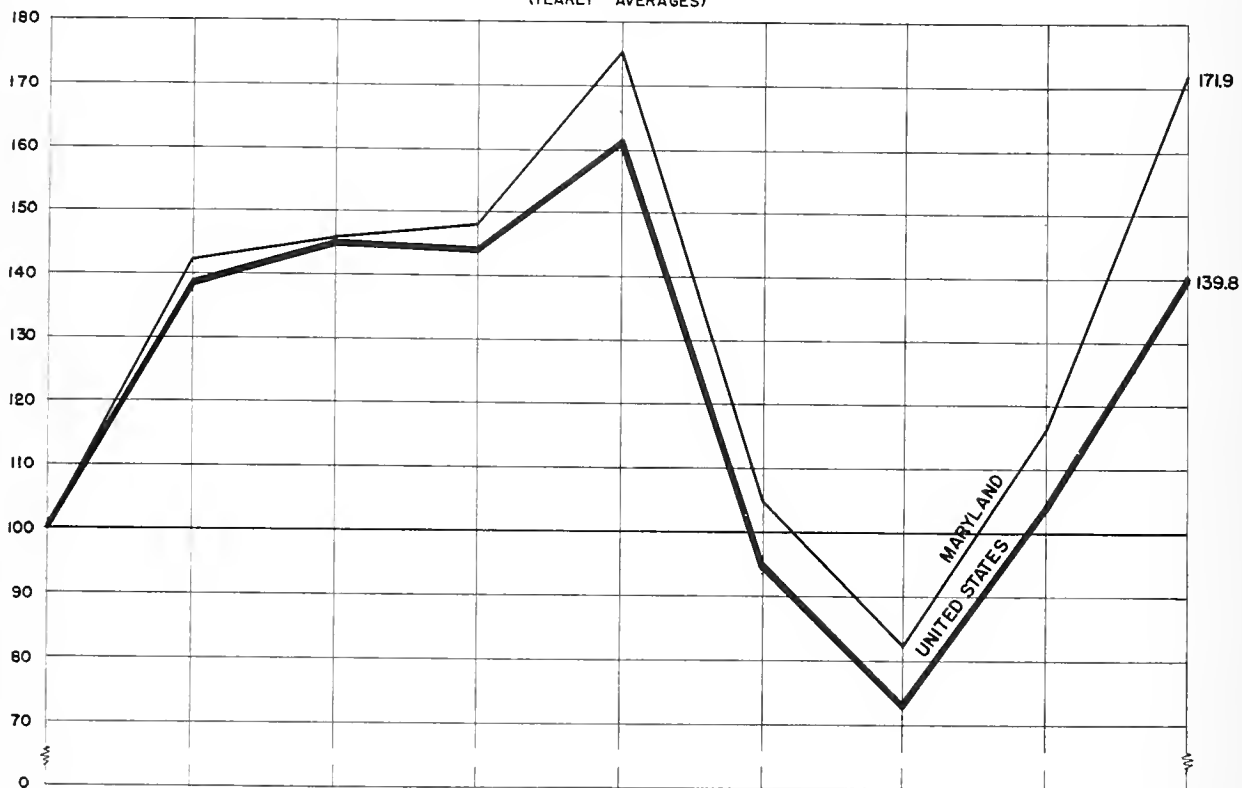


EXHIBIT-12A

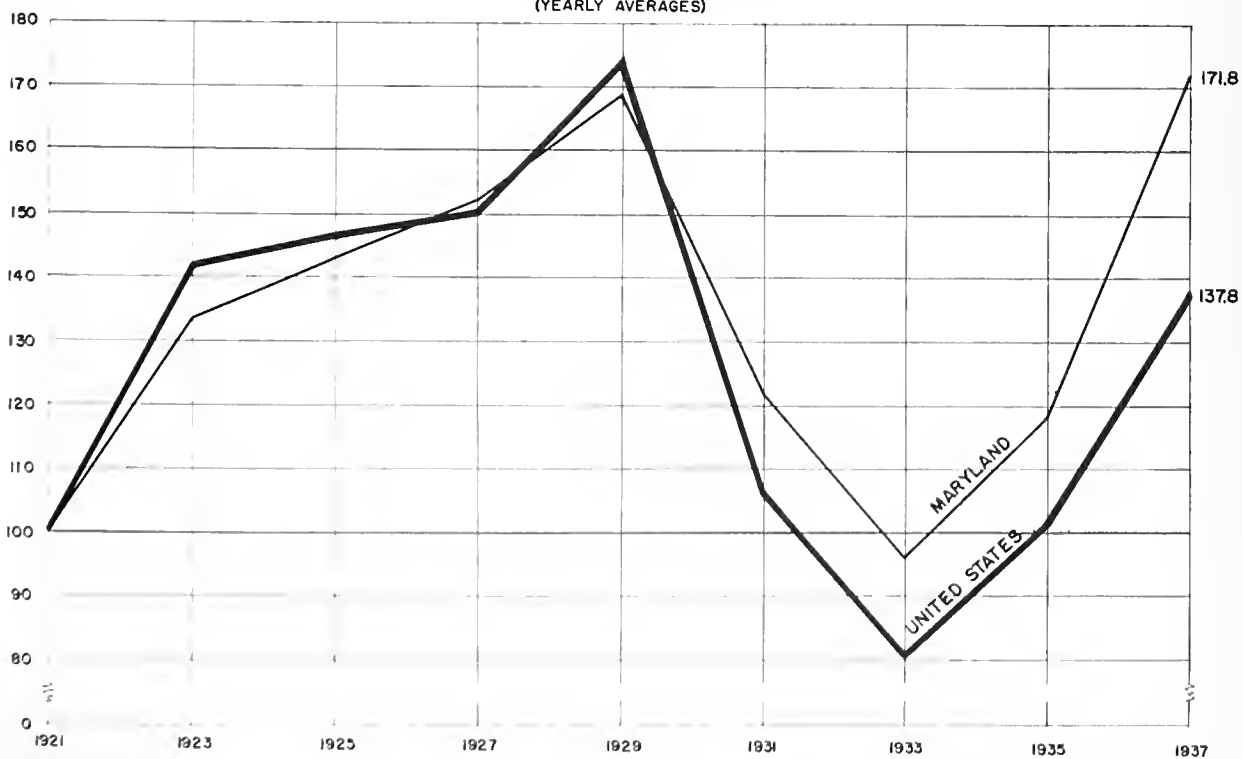
ECONOMIC STUDIES OF MARYLAND, PART III
MANUFACTURING INDUSTRIES COLLECTIVELY
PRODUCT VALUE

(YEARLY AVERAGES)



VALUE ADDED BY MANUFACTURE

(YEARLY AVERAGES)

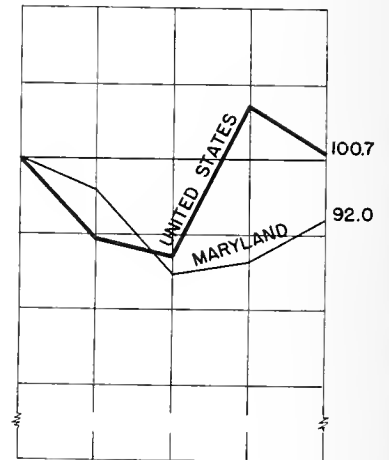
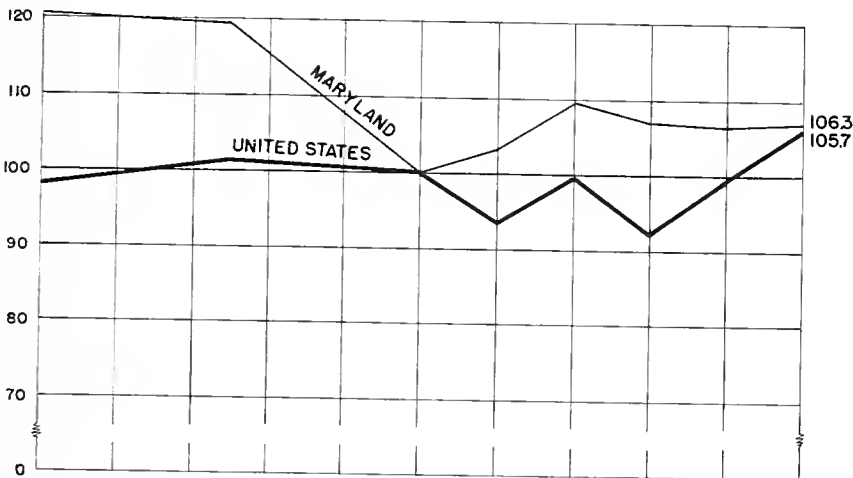


ECONOMIC STUDIES OF MARYLAND, PART III

EMPLOYMENT AND WAGE TRENDS IN THE CLOTHING INDUSTRY

1909-1937

EMPLOYMENT



WAGES

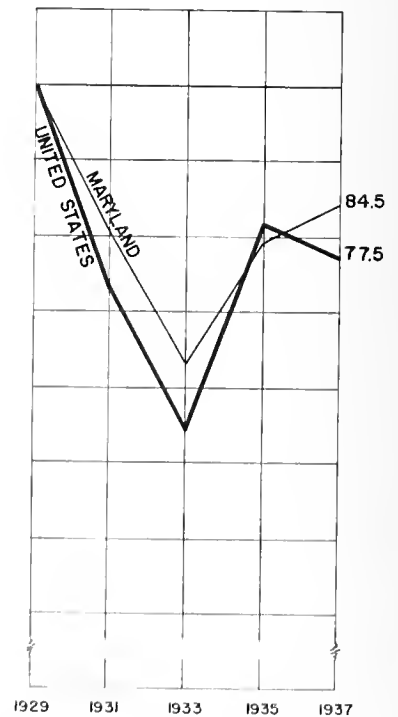
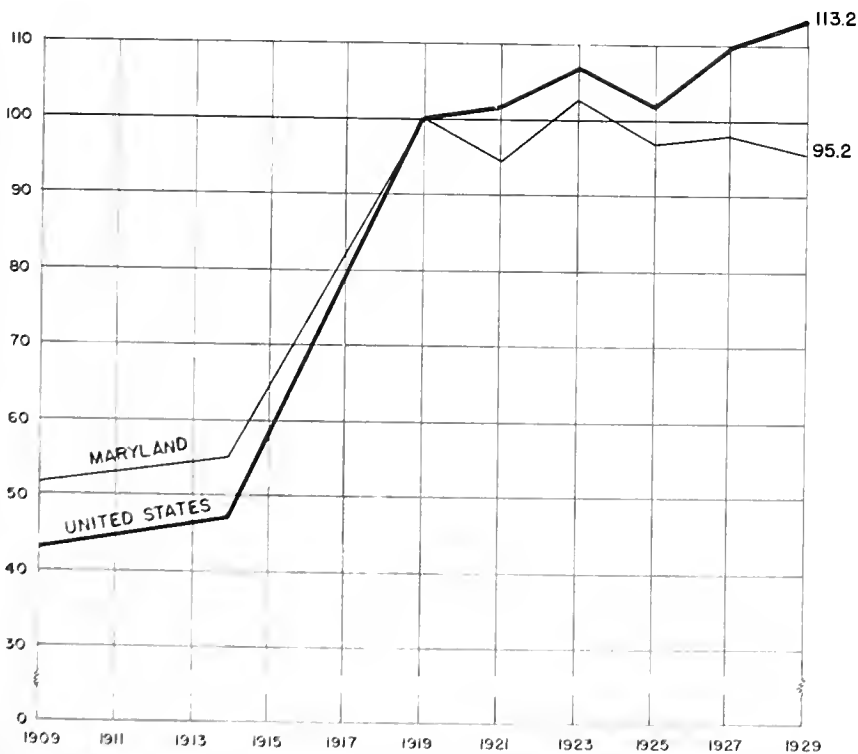


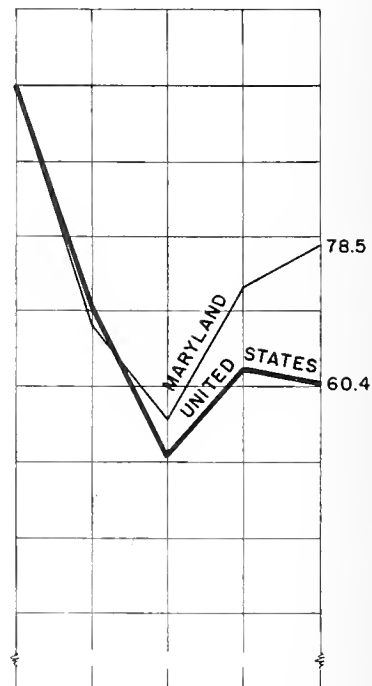
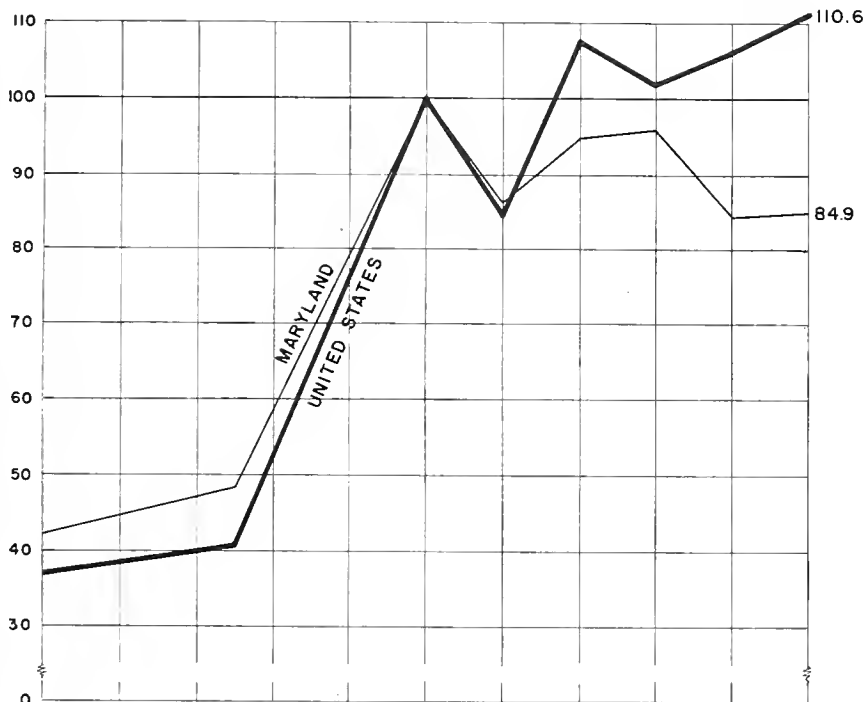
EXHIBIT-13A

ECONOMIC STUDIES OF MARYLAND, PART III

CLOTHING

1909-1937

PRODUCT VALUE



VALUE ADDED BY MANUFACTURE

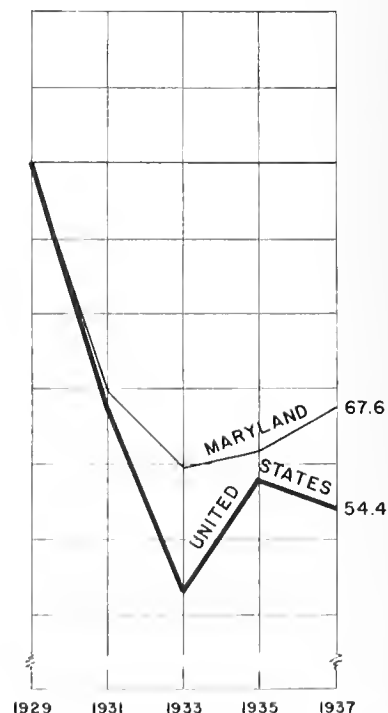
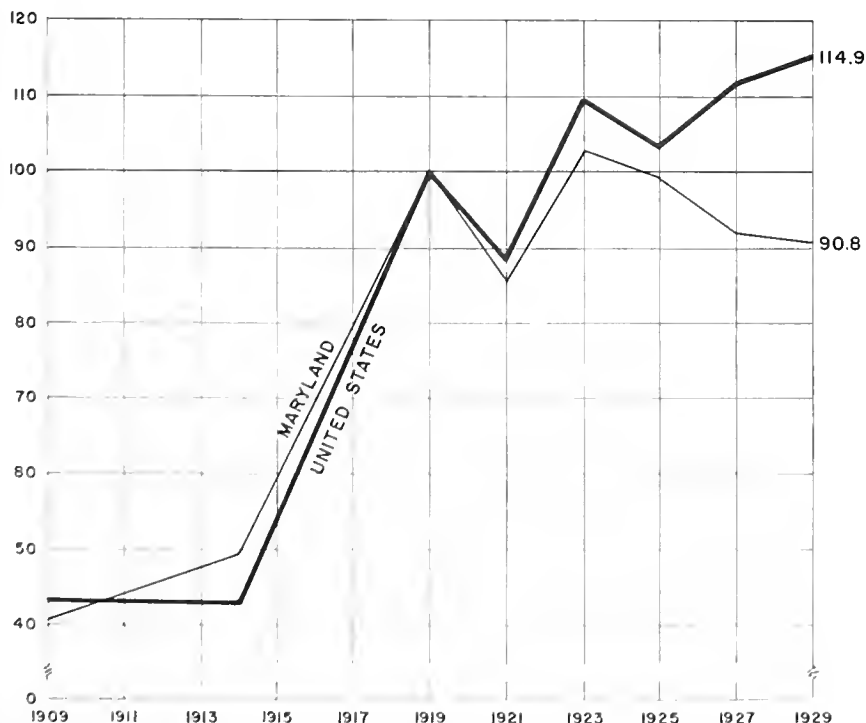


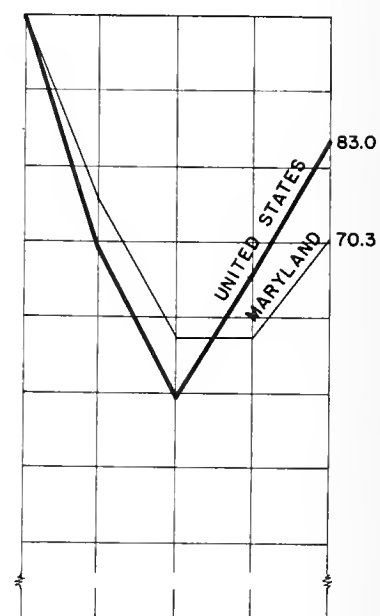
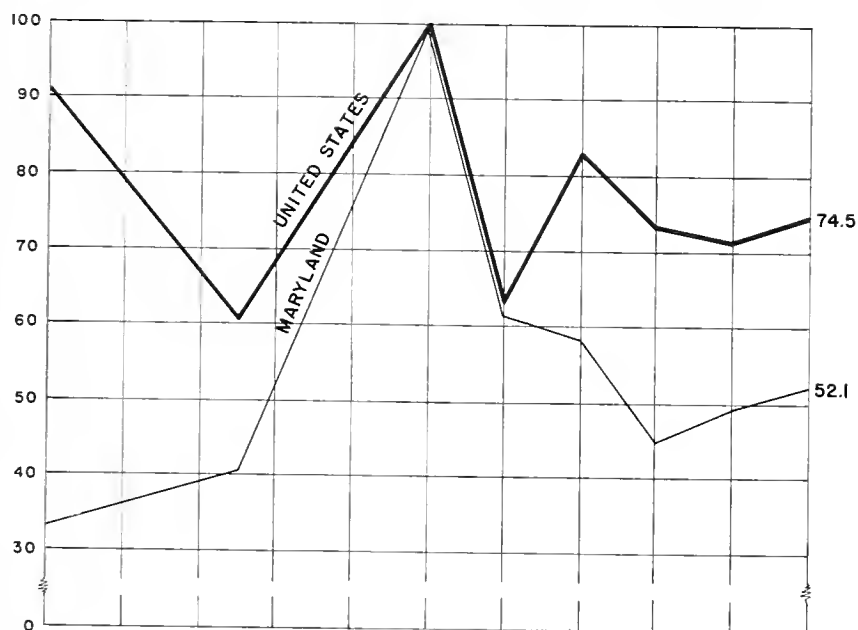
EXHIBIT-14

ECONOMIC STUDIES OF MARYLAND, PART III

OTHER IRON & STEEL

1909-1937

EMPLOYMENT



WAGES

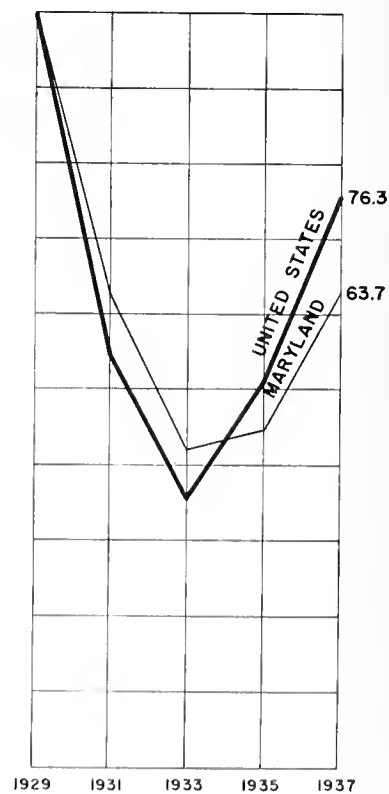
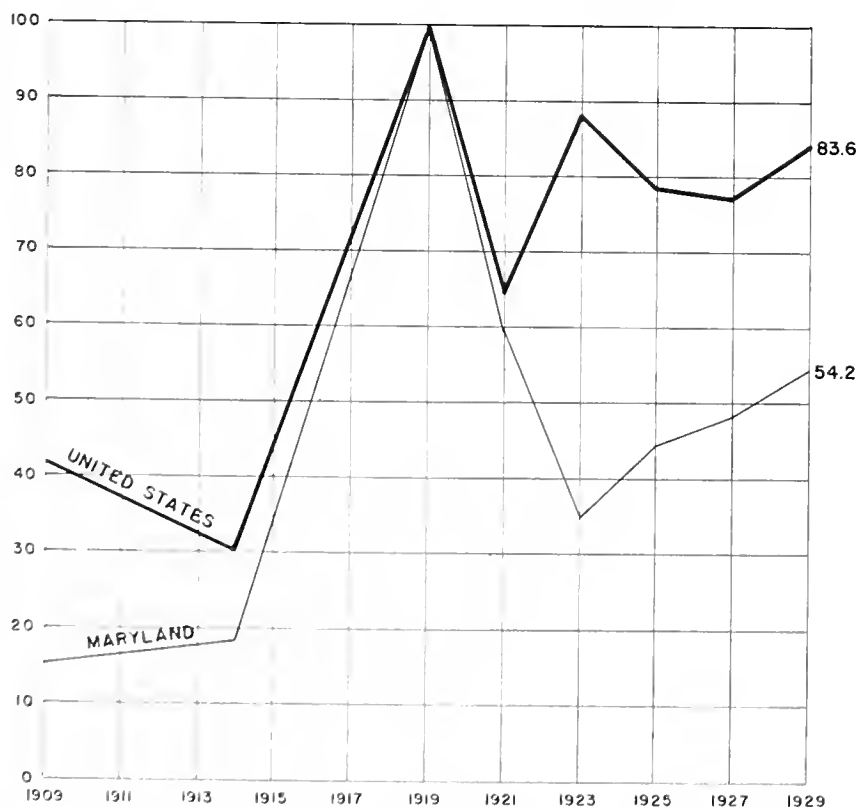


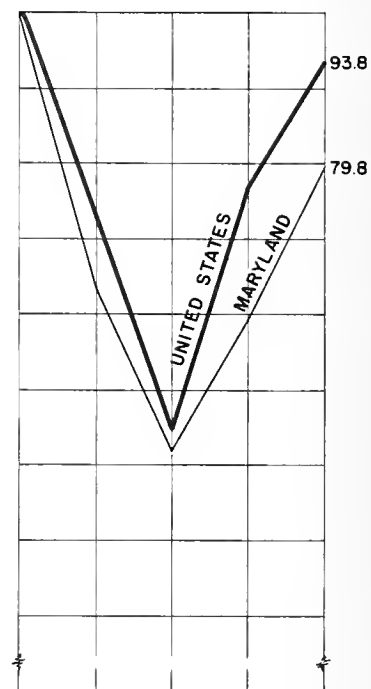
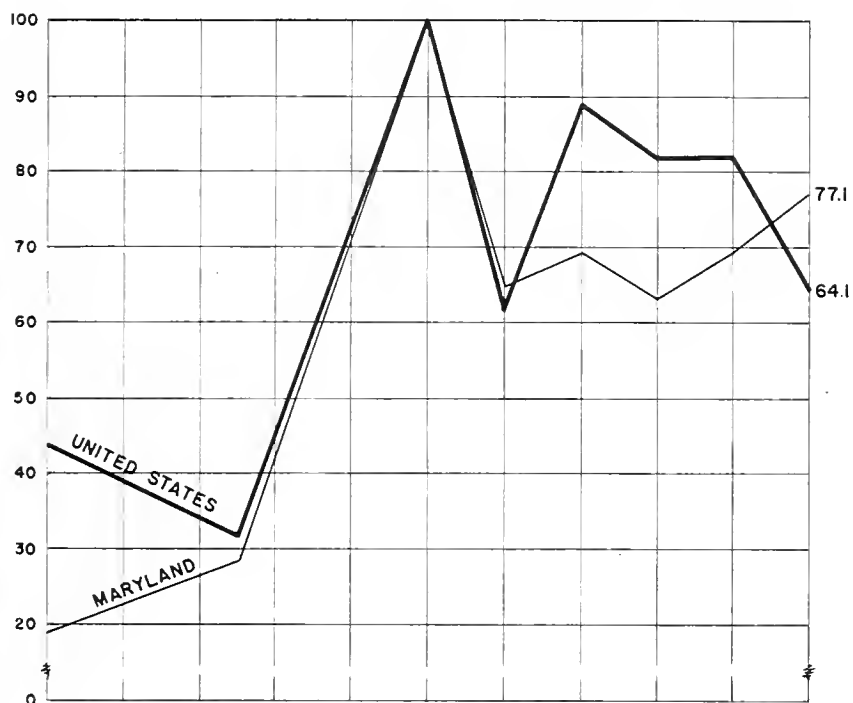
EXHIBIT-14A

ECONOMIC STUDIES OF MARYLAND, PART III

OTHER IRON & STEEL

1909-1937

PRODUCT VALUE



VALUE ADDED BY MANUFACTURE

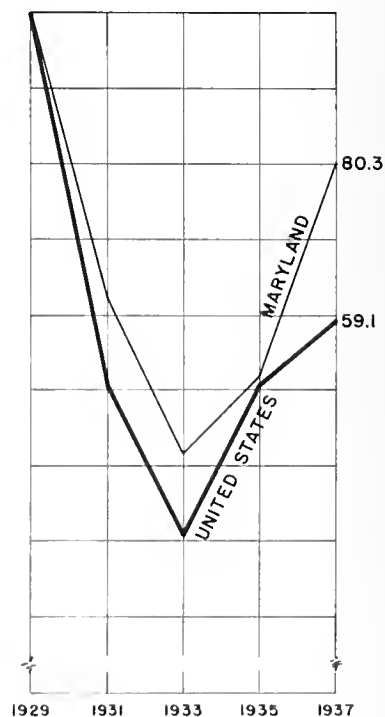
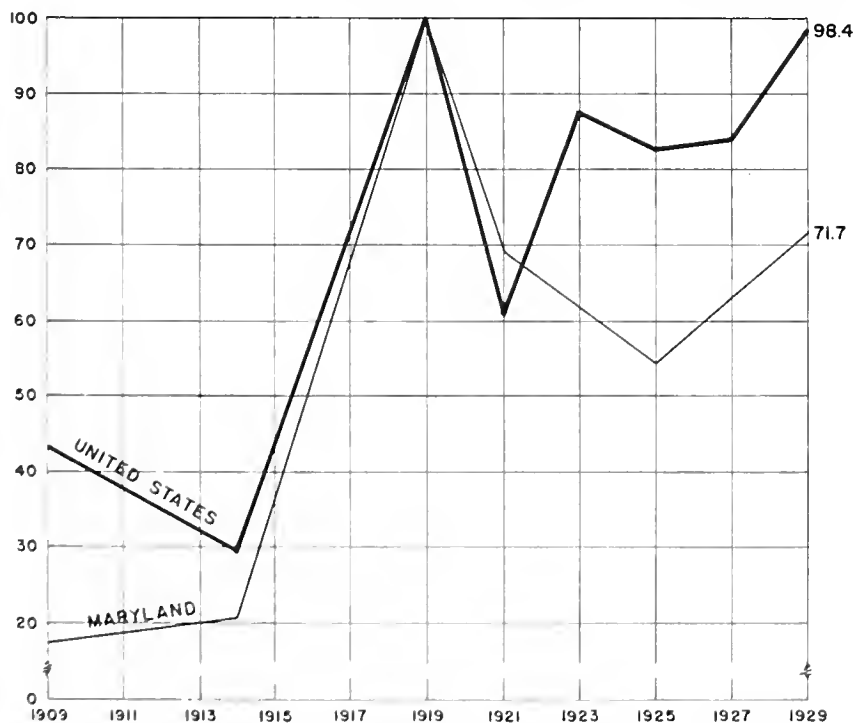


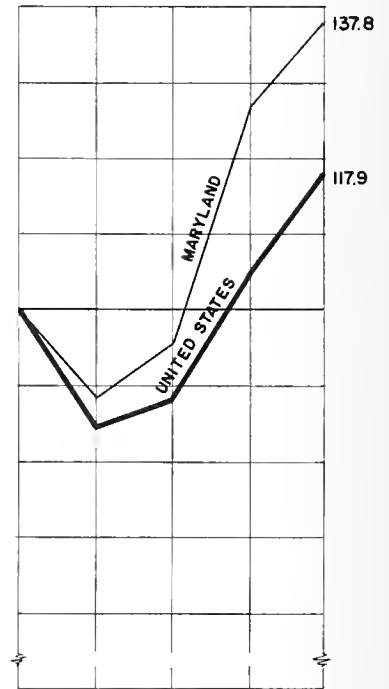
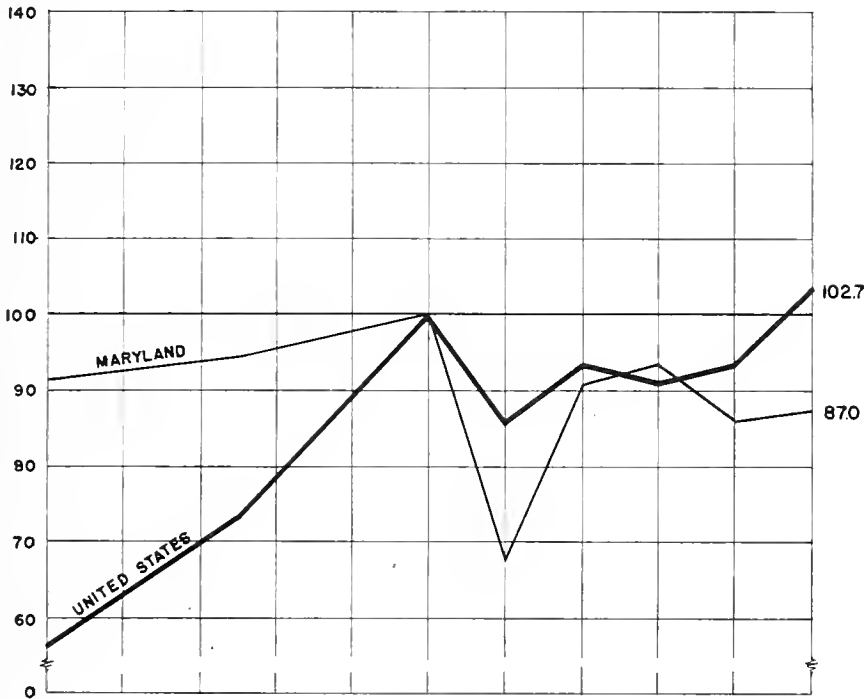
EXHIBIT-15

ECONOMIC STUDIES OF MARYLAND, PART III

FOOD & ALLIED

1909-1937

EMPLOYMENT



WAGES

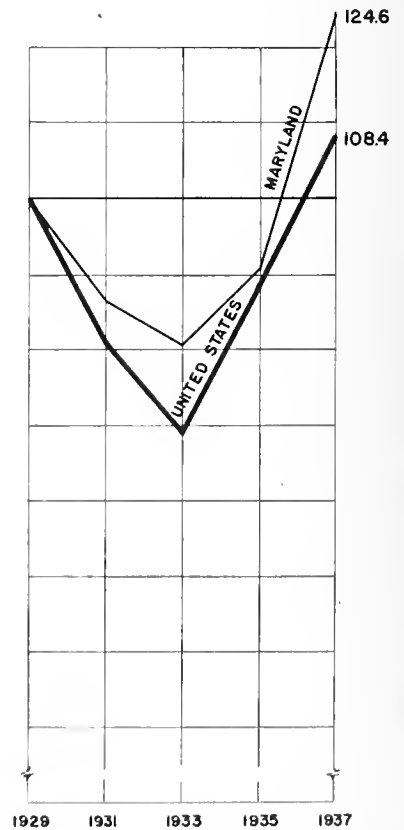
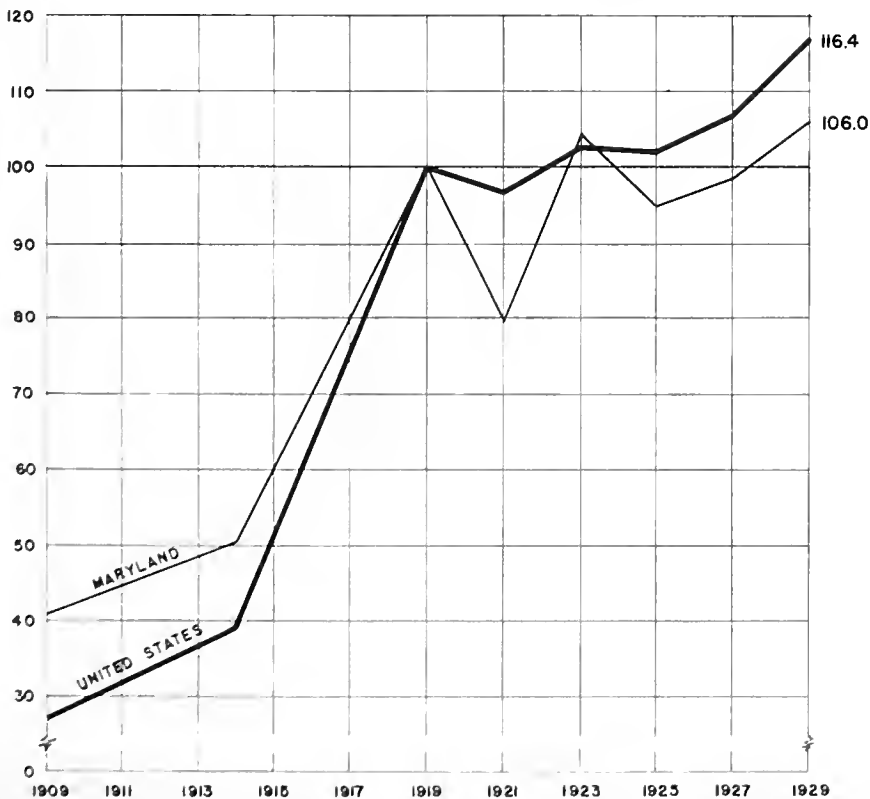
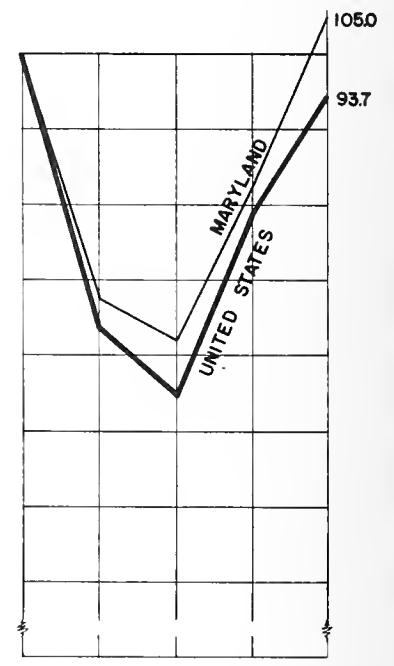
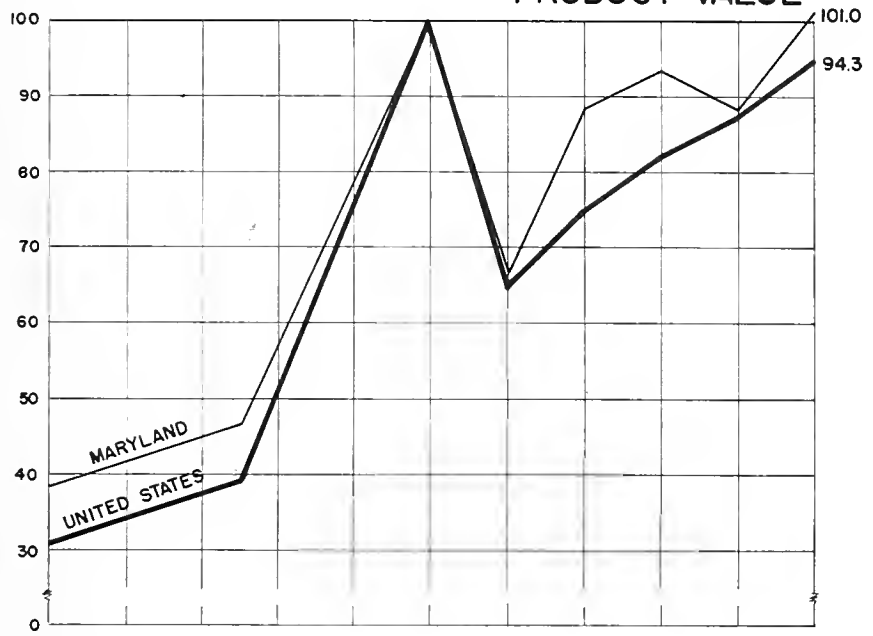


EXHIBIT-15A

ECONOMIC STUDIES OF MARYLAND, PART III

FOOD & ALLIED
1909-1937

PRODUCT VALUE



VALUE ADDED BY MANUFACTURE

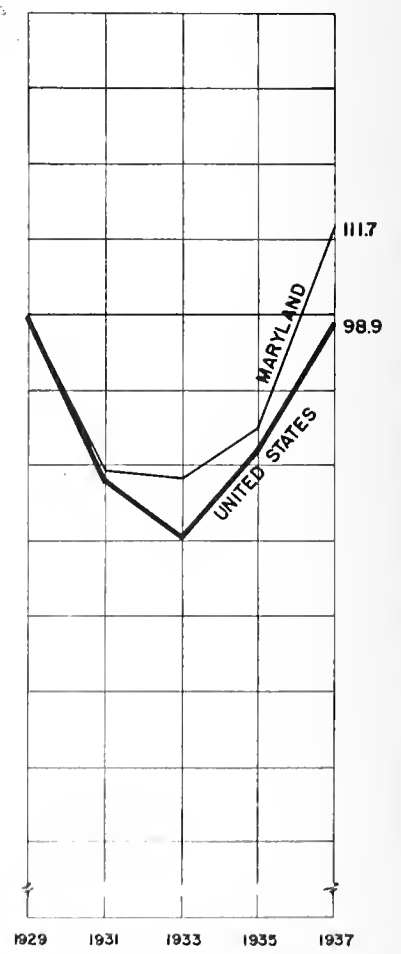
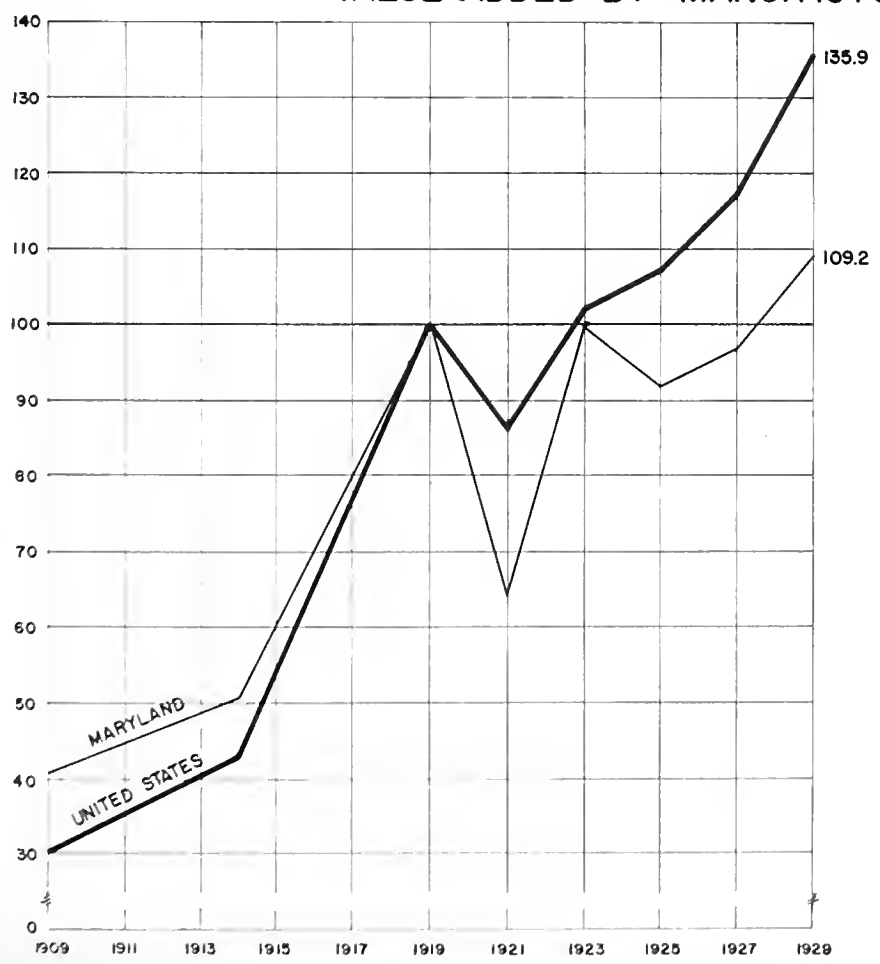
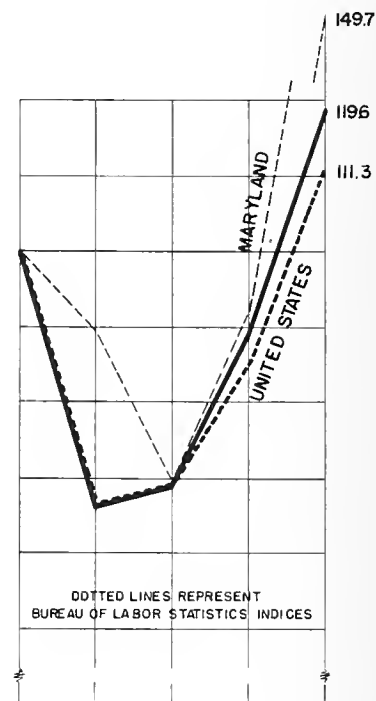
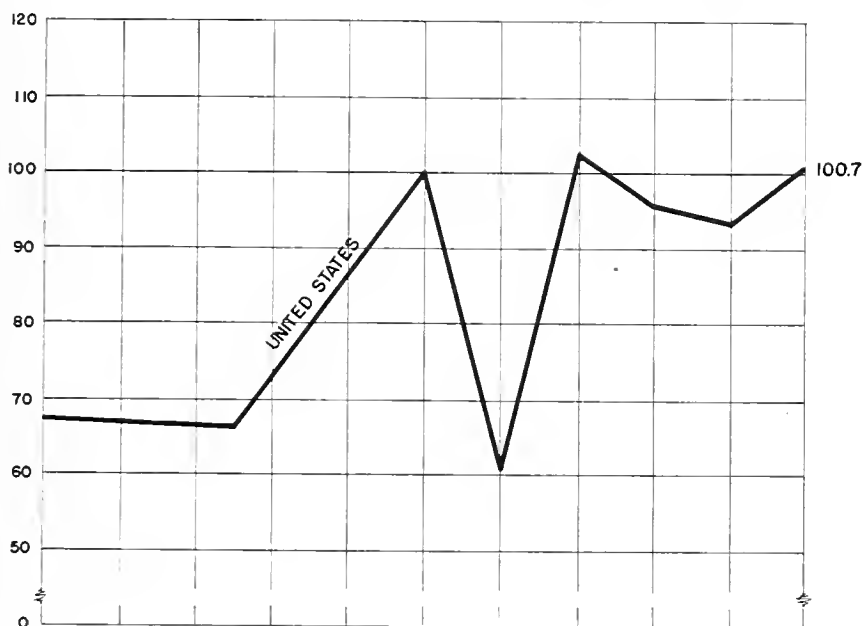


EXHIBIT-16

ECONOMIC STUDIES OF MARYLAND, PART III BLAST FURNACES & STEEL ROLLING MILLS

1909-1937

EMPLOYMENT



WAGES

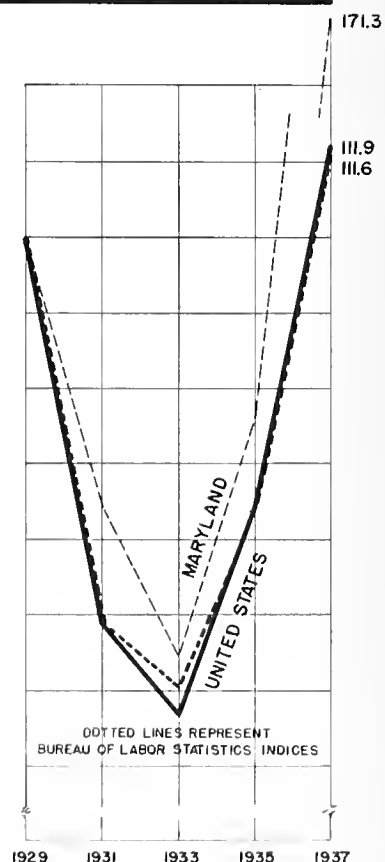
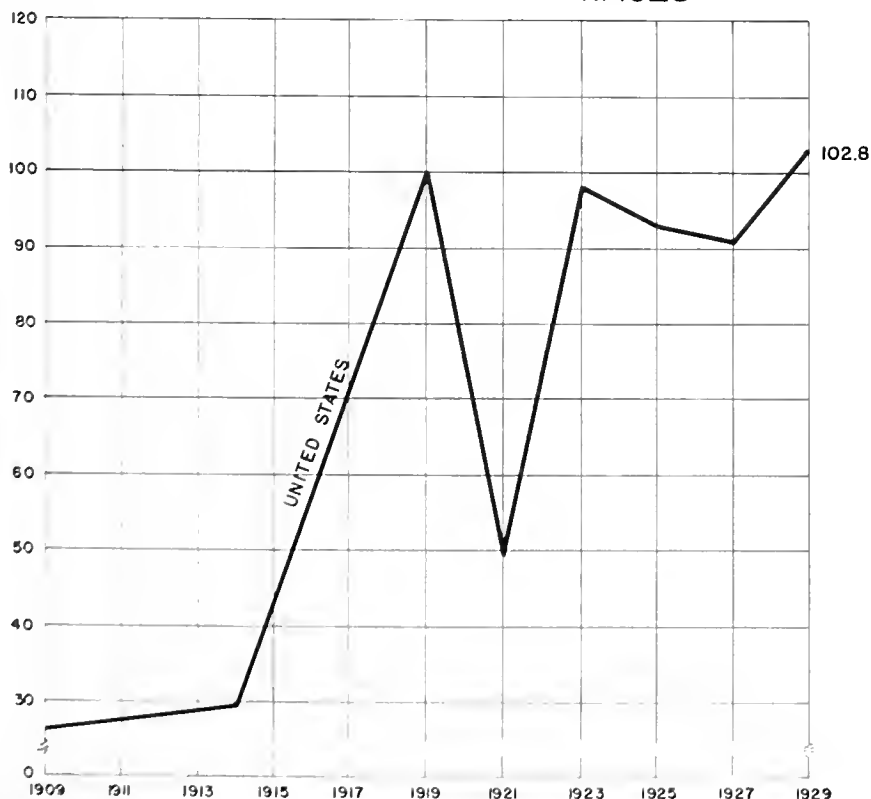
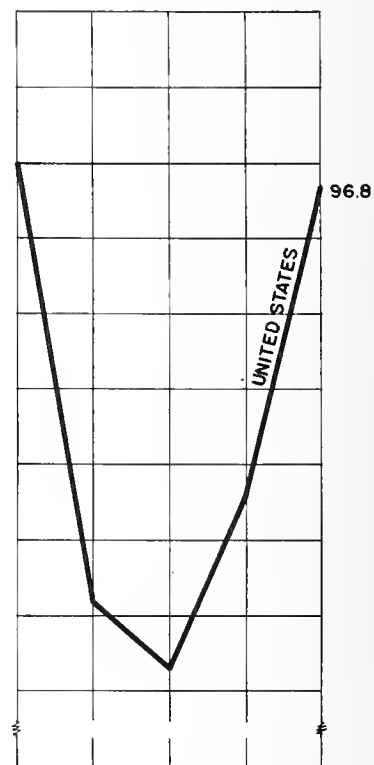
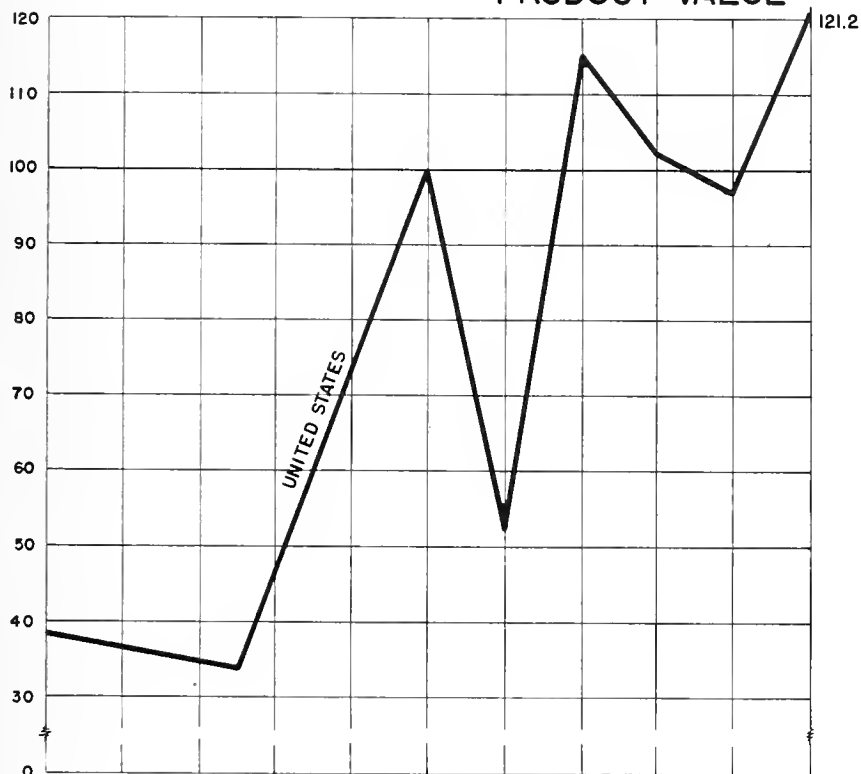


EXHIBIT-16A

ECONOMIC STUDIES OF MARYLAND, PART III
 BLAST FURNACES & STEEL ROLLING MILLS
 1909-1937

PRODUCT VALUE



VALUE ADDED BY MANUFACTURE

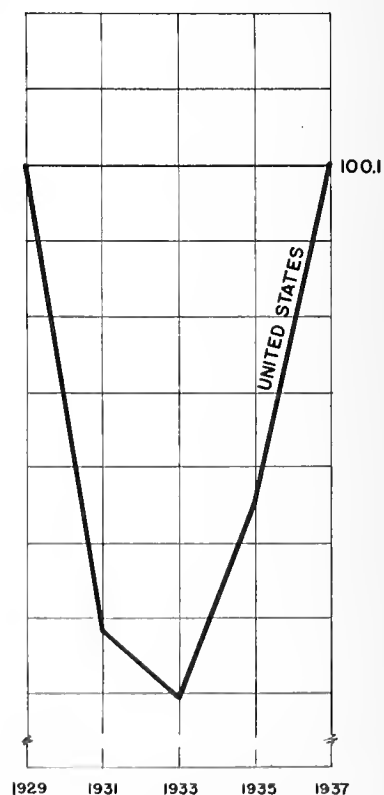
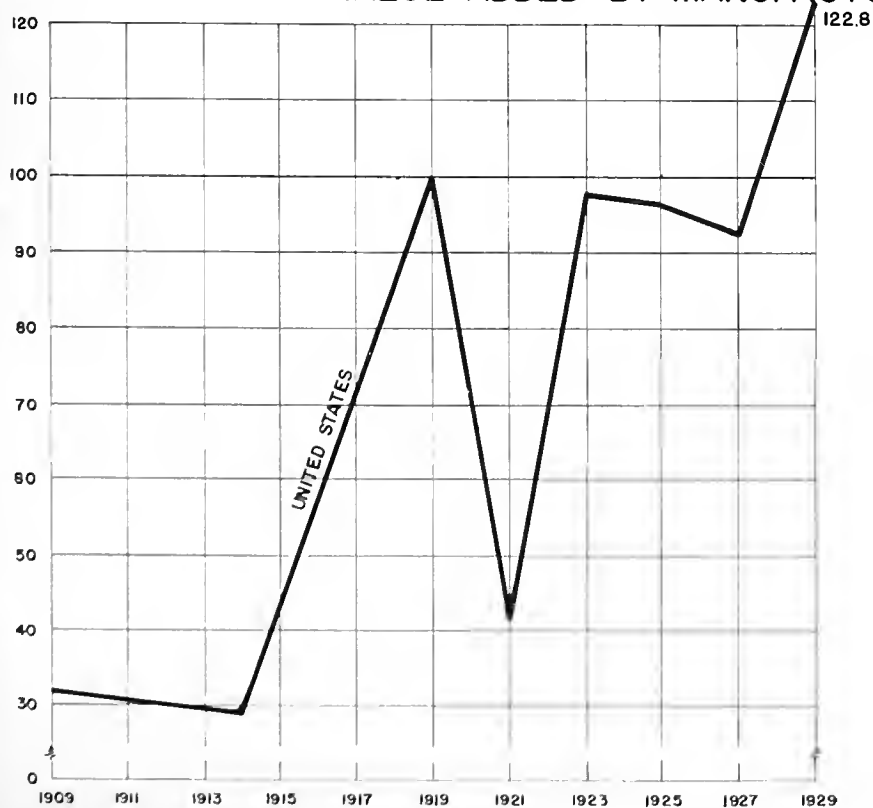


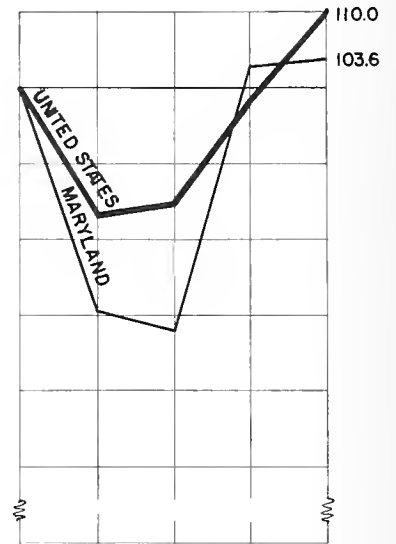
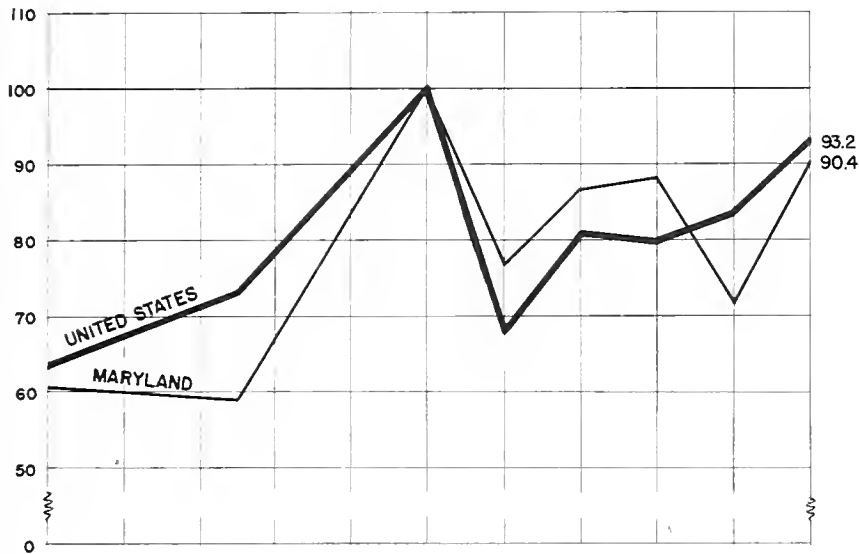
EXHIBIT-17

ECONOMIC STUDIES OF MARYLAND, PART III

CHEMICAL & ALLIED

1909-1937

EMPLOYMENT



WAGES

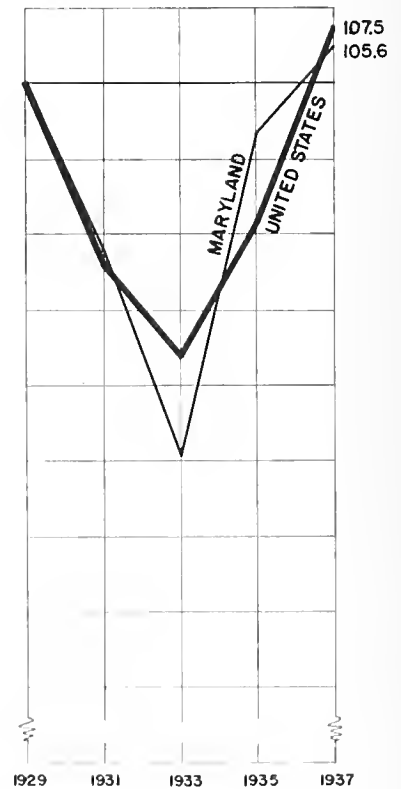
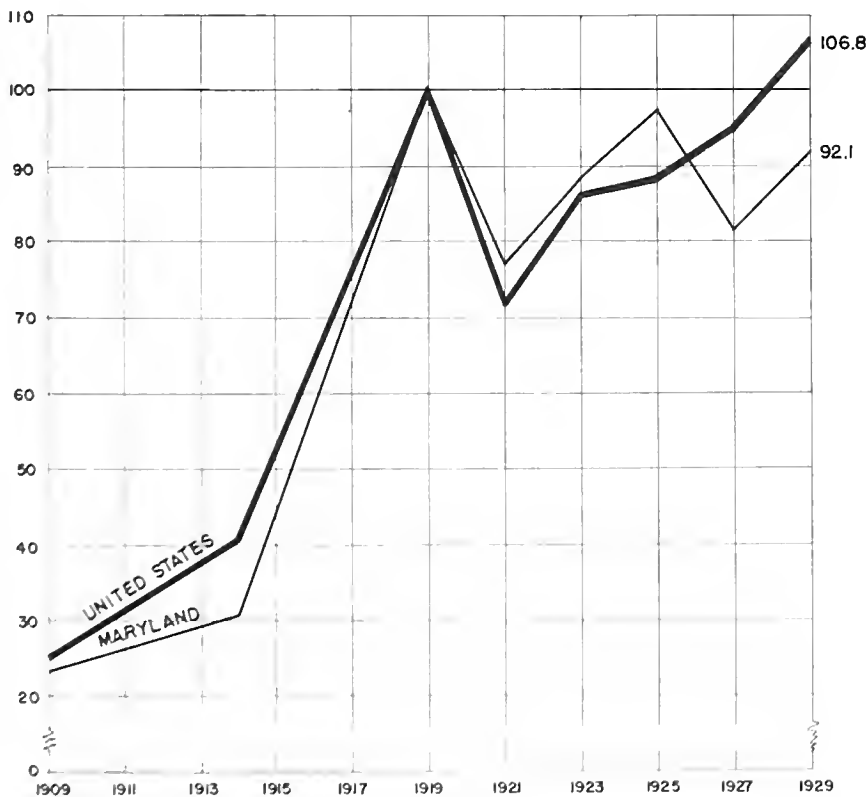
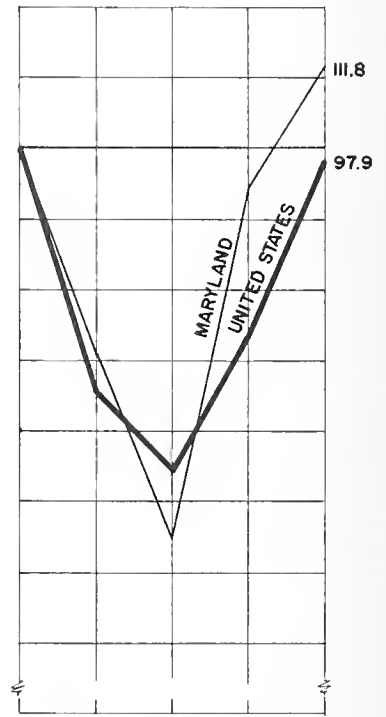
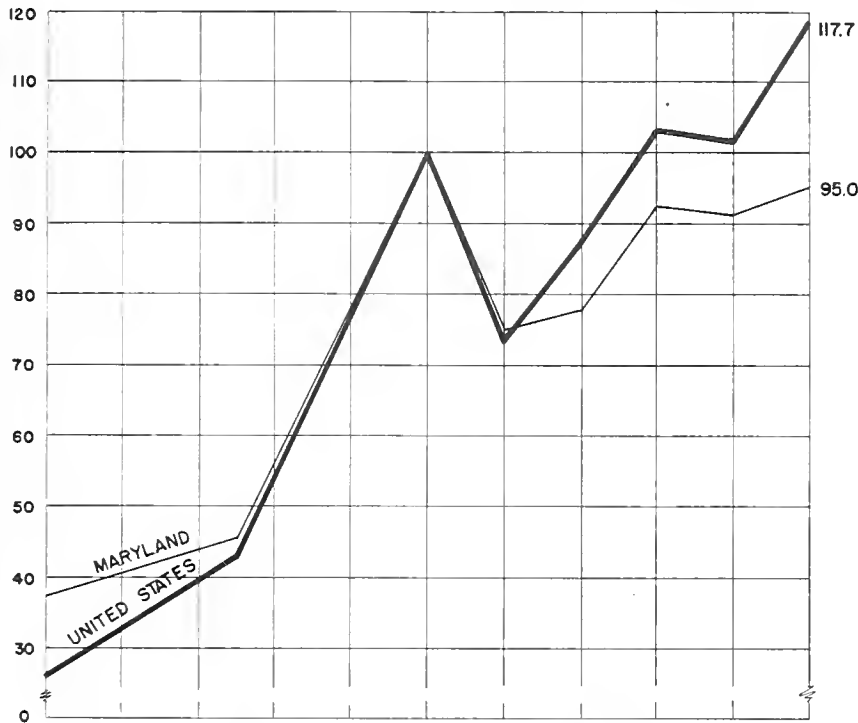


EXHIBIT-17A
ECONOMIC STUDIES OF MARYLAND, PART III
CHEMICAL & ALLIED
1909-1937

PRODUCT VALUE



VALUE ADDED BY MANUFACTURE

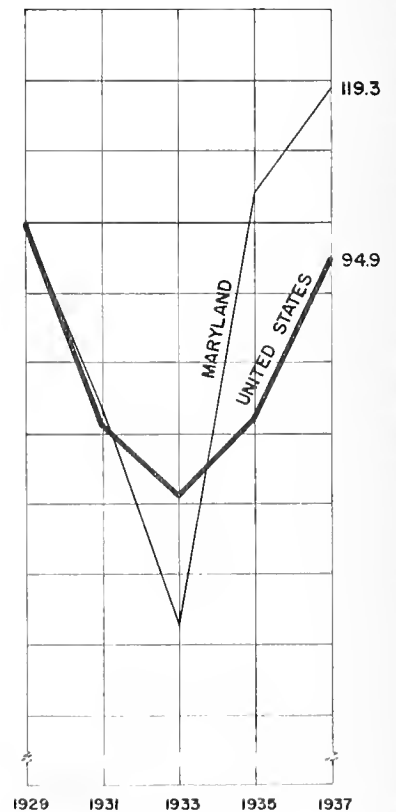
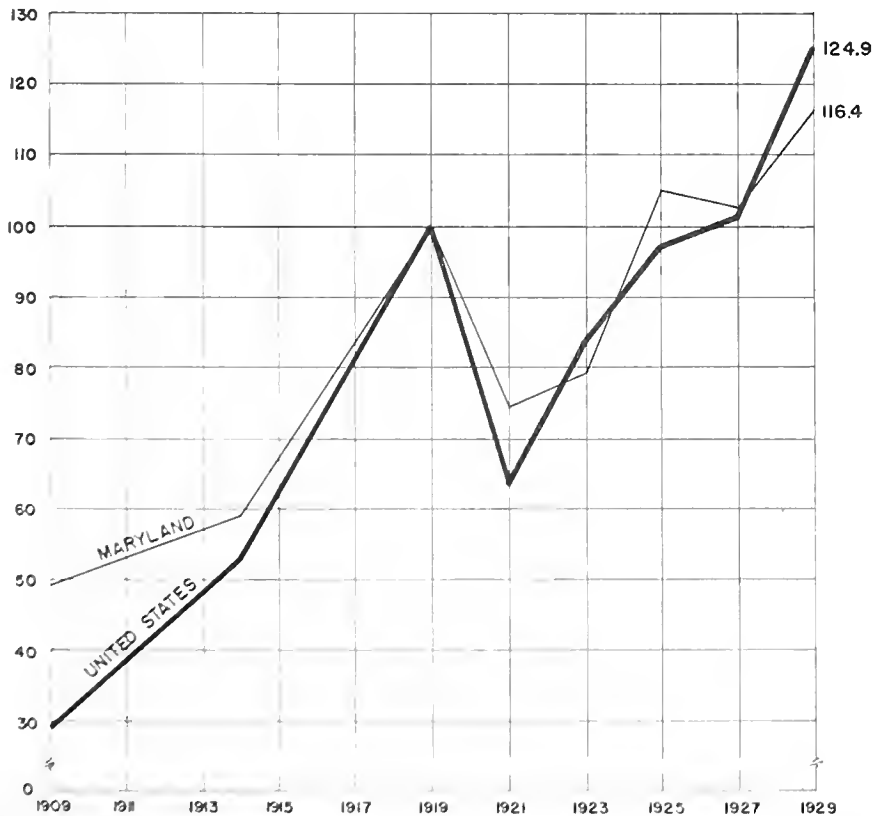


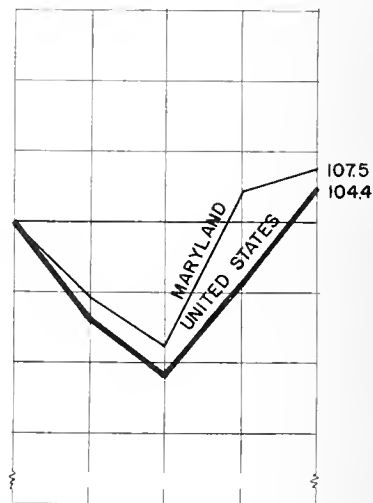
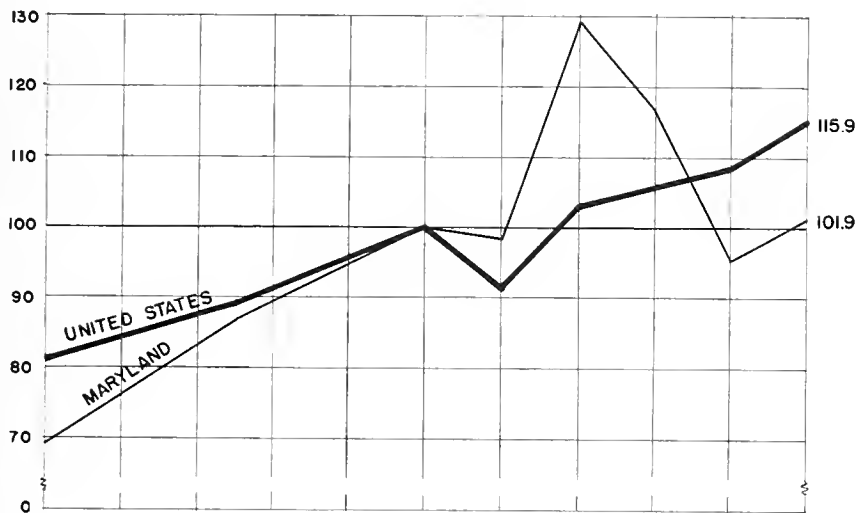
EXHIBIT-18

ECONOMIC STUDIES OF MARYLAND, PART III

PAPER, PRINTING & ALLIED

1909-1937

EMPLOYMENT



WAGES

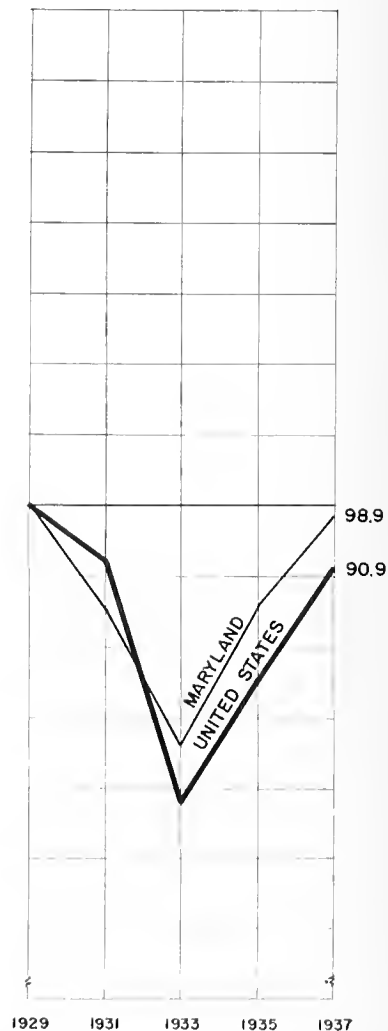
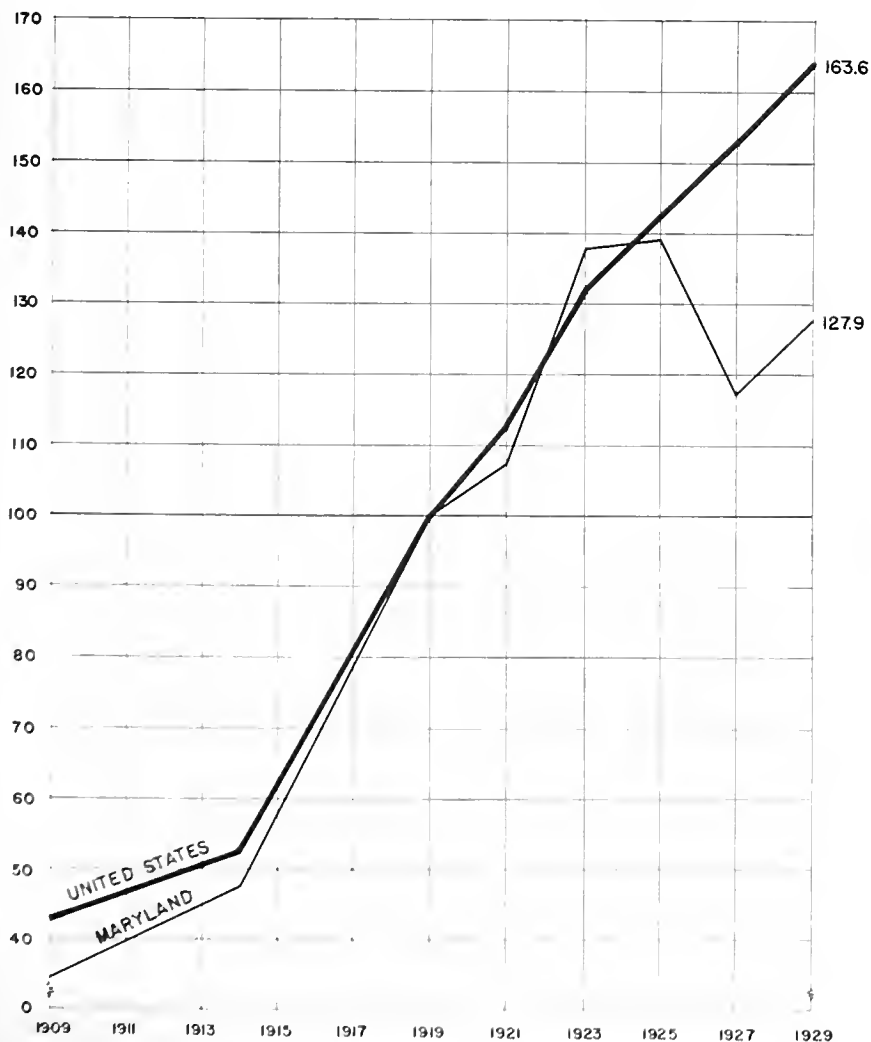


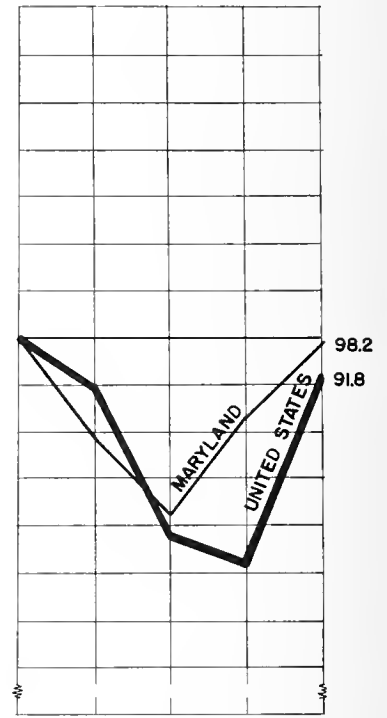
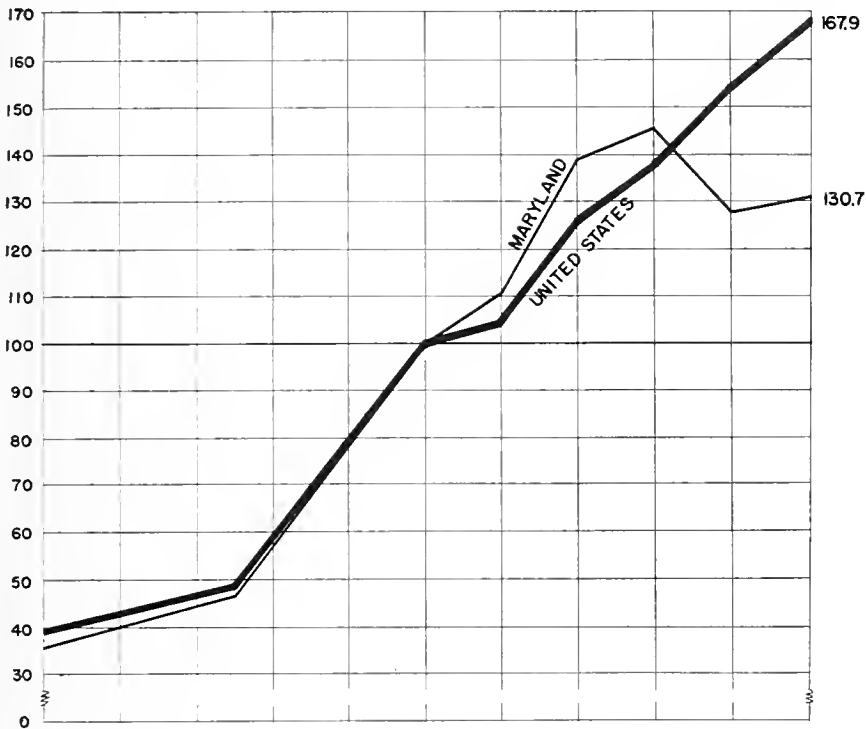
EXHIBIT-18A

ECONOMIC STUDIES OF MARYLAND, PART III

PAPER, PRINTING & ALLIED

1909-1937

PRODUCT VALUE



VALUE ADDED BY MANUFACTURE

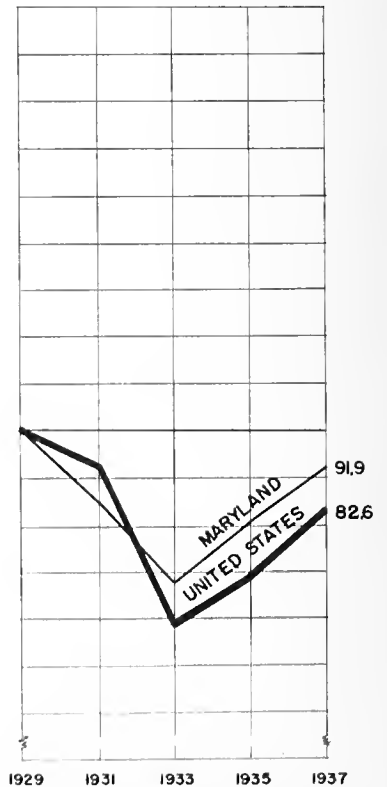
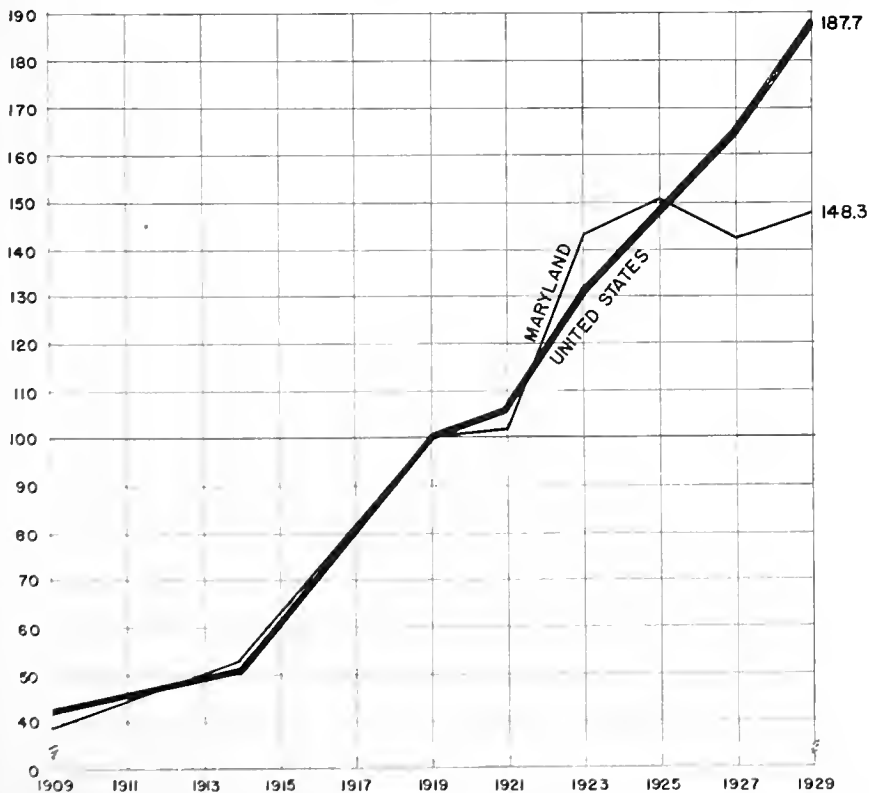
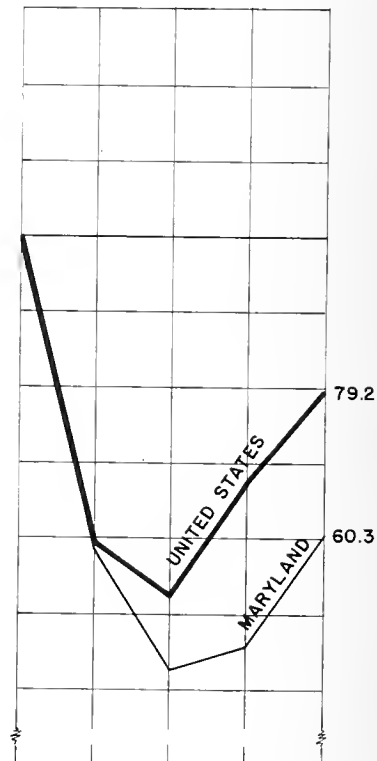
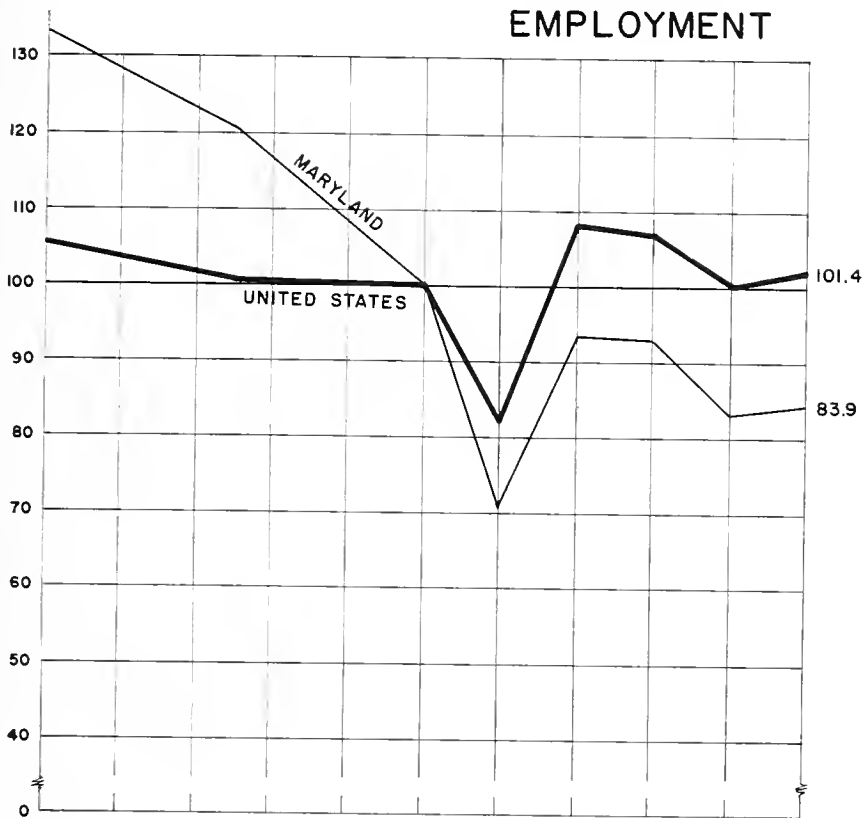


EXHIBIT-19
ECONOMIC STUDIES OF MARYLAND, PART III
LUMBER & ALLIED
1909-1937

EMPLOYMENT



WAGES

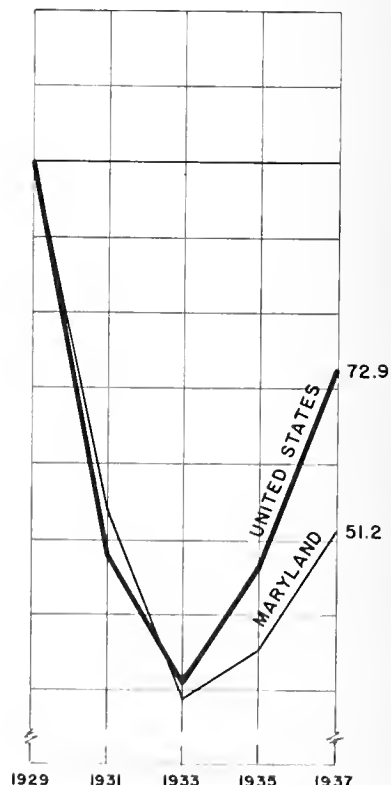
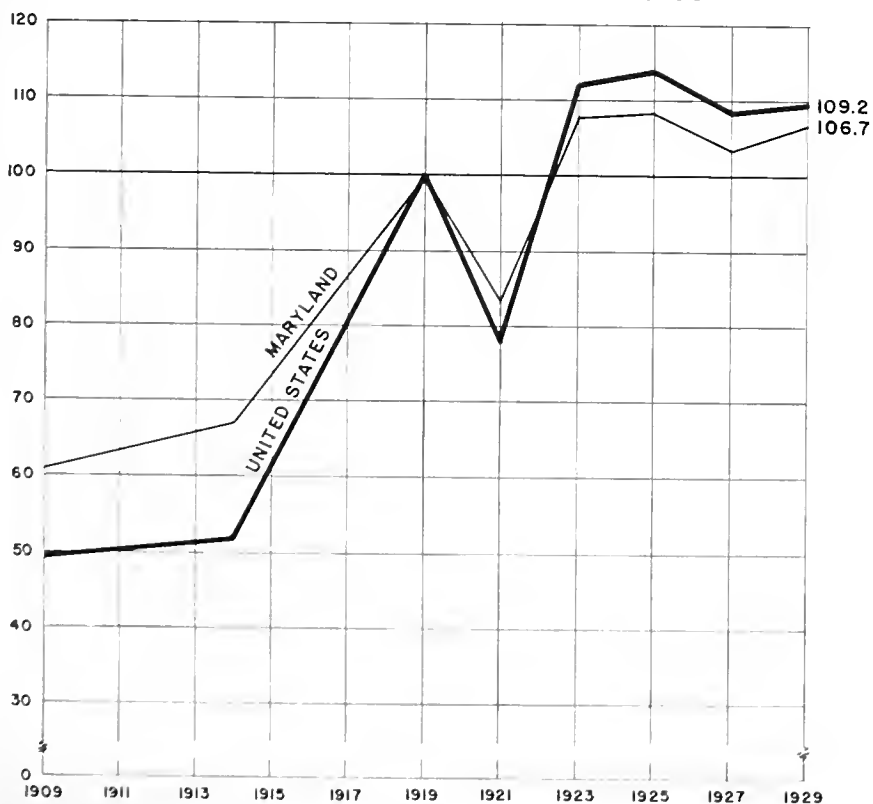


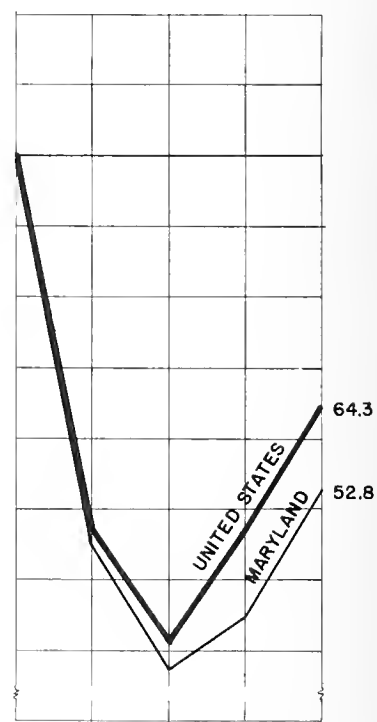
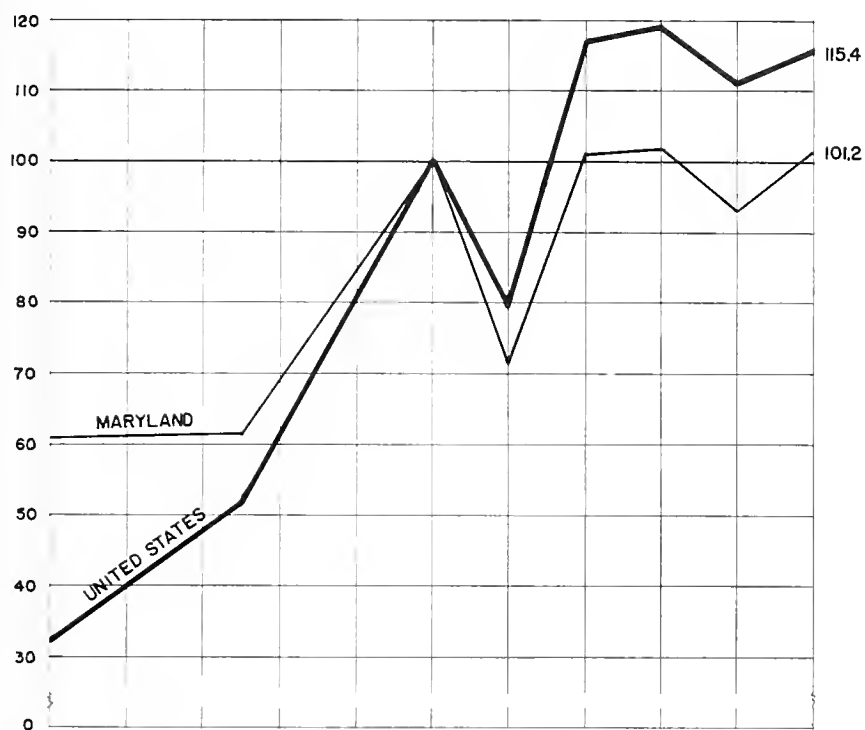
EXHIBIT-19A

ECONOMIC STUDIES OF MARYLAND, PART III

LUMBER & ALLIED

1909-1937

PRODUCT VALUE



VALUE ADDED BY MANUFACTURE

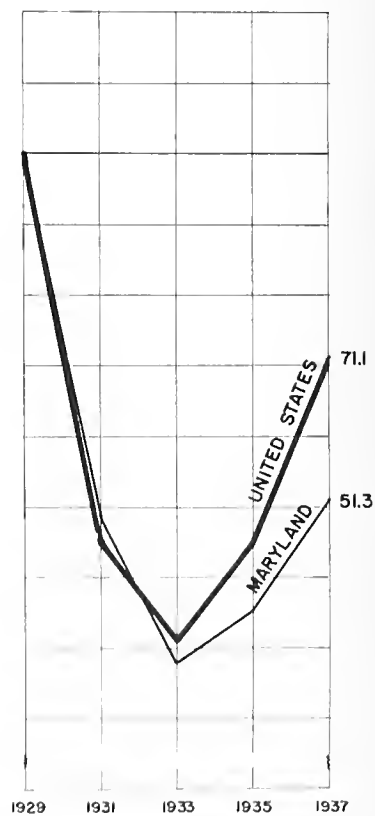
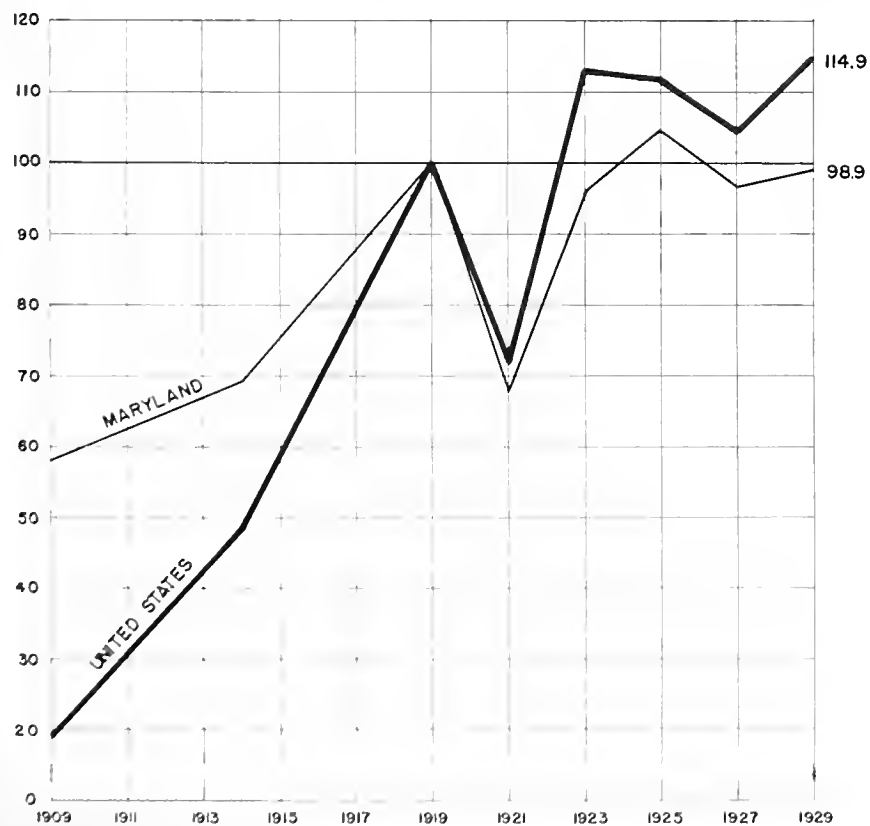


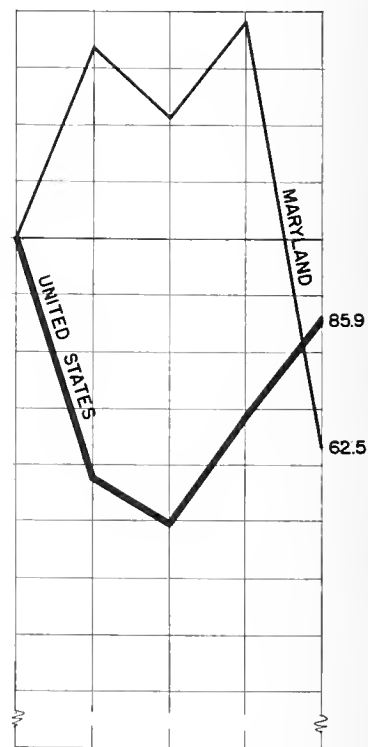
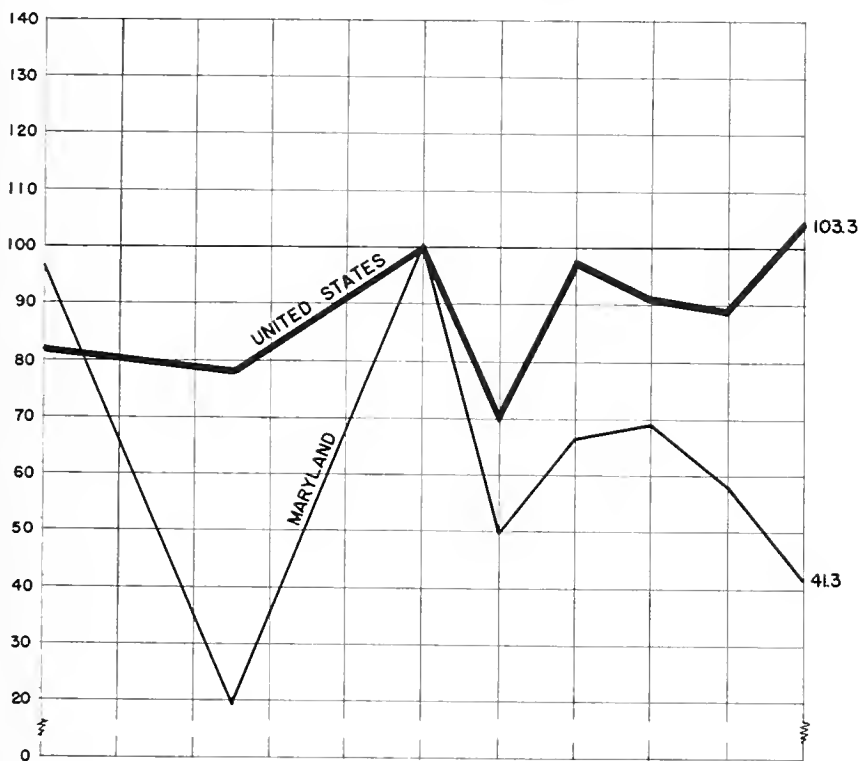
EXHIBIT-20

ECONOMIC STUDIES OF MARYLAND, PART III

NON-FERROUS METALS

1909-1937

EMPLOYMENT



WAGES

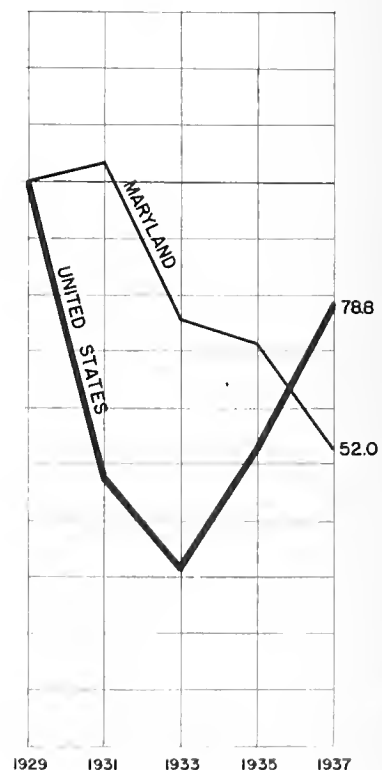
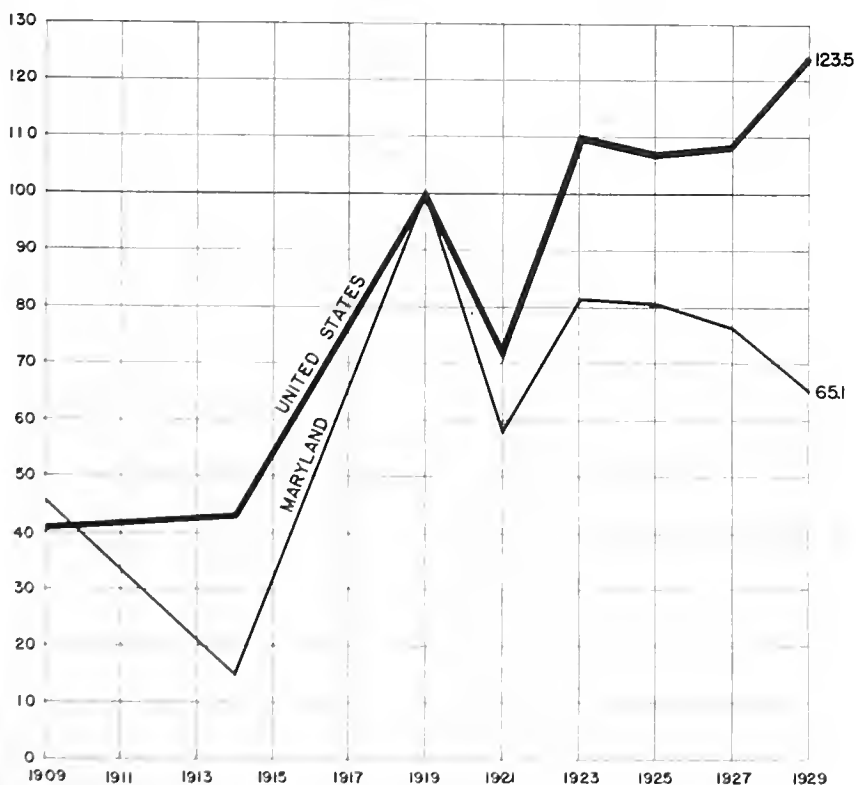


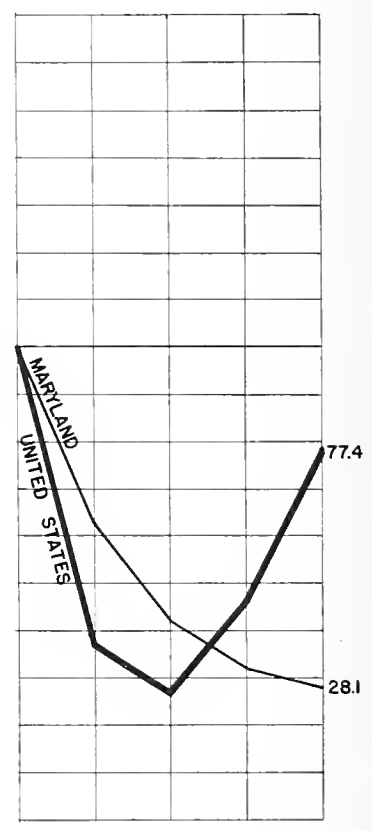
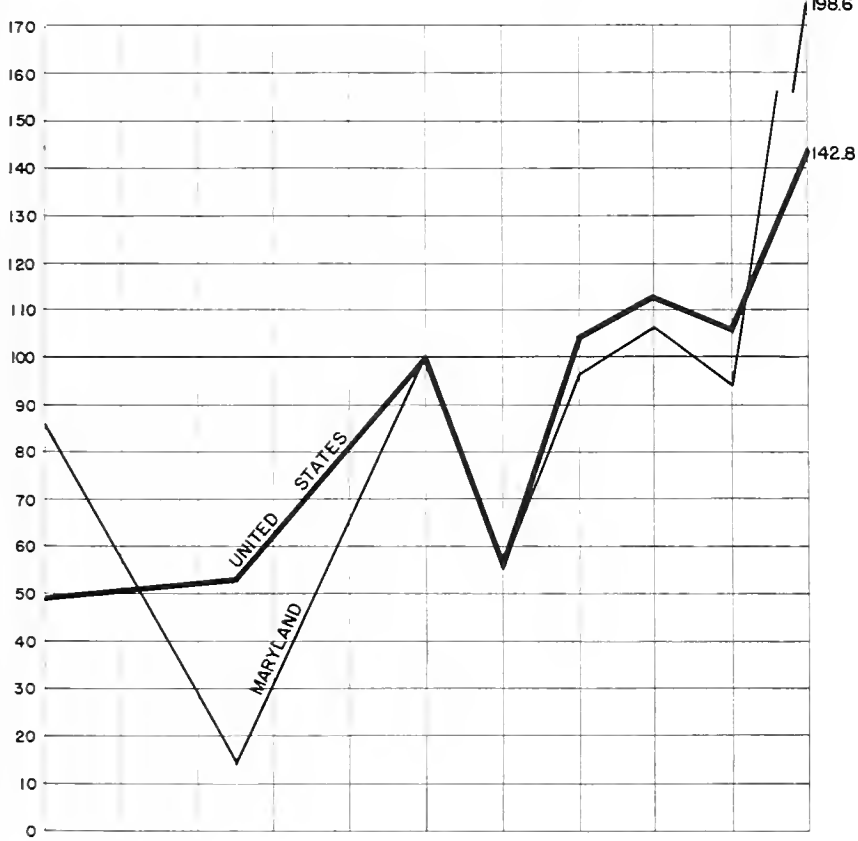
EXHIBIT 20A

ECONOMIC STUDIES OF MARYLAND, PART III

NON-FERROUS METALS

1909 - 1937

PRODUCT VALUE



VALUE ADDED BY MANUFACTURE

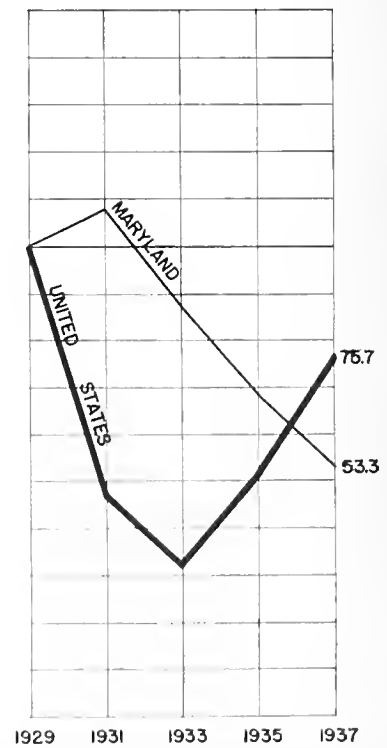
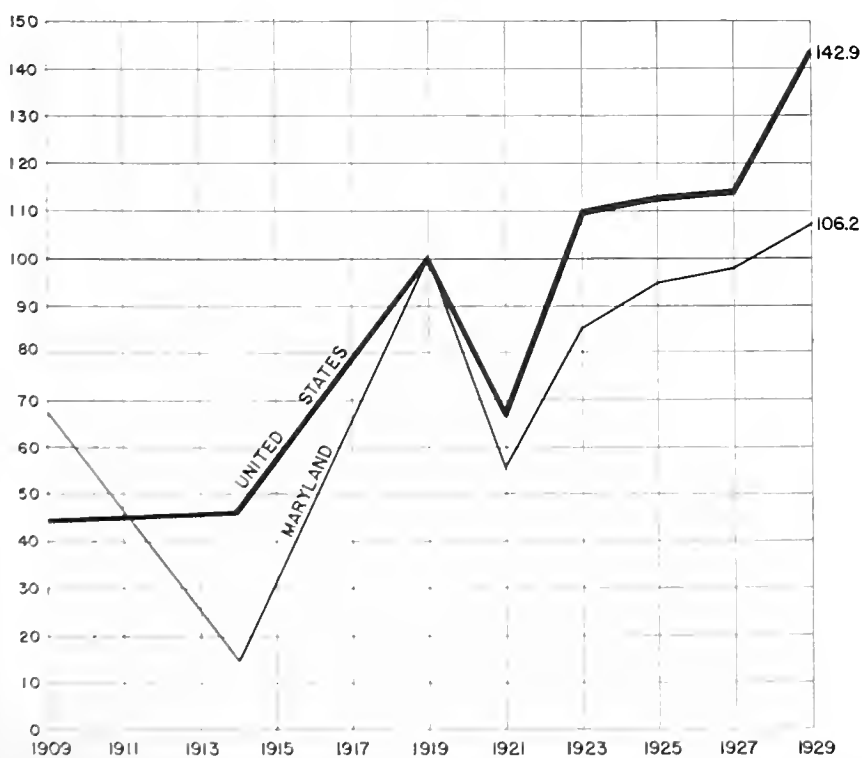


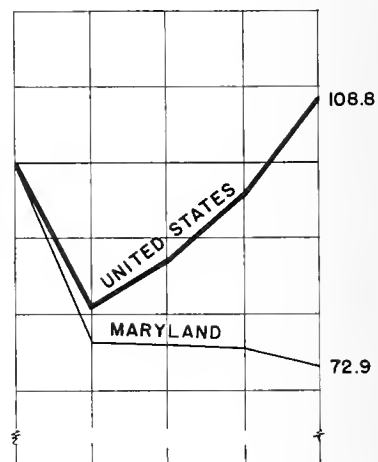
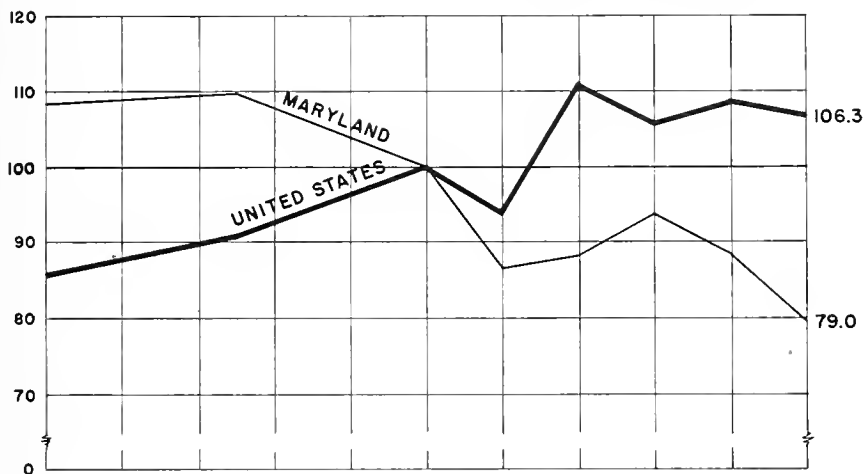
EXHIBIT-21

ECONOMIC STUDIES OF MARYLAND, PART III

TEXTILES

1909-1937

EMPLOYMENT



WAGES

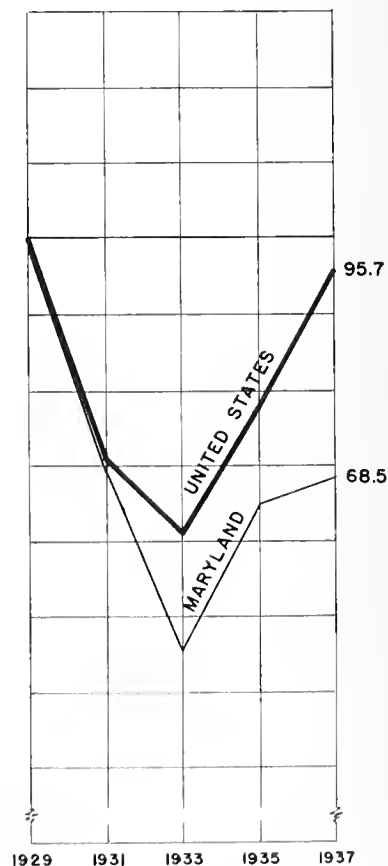
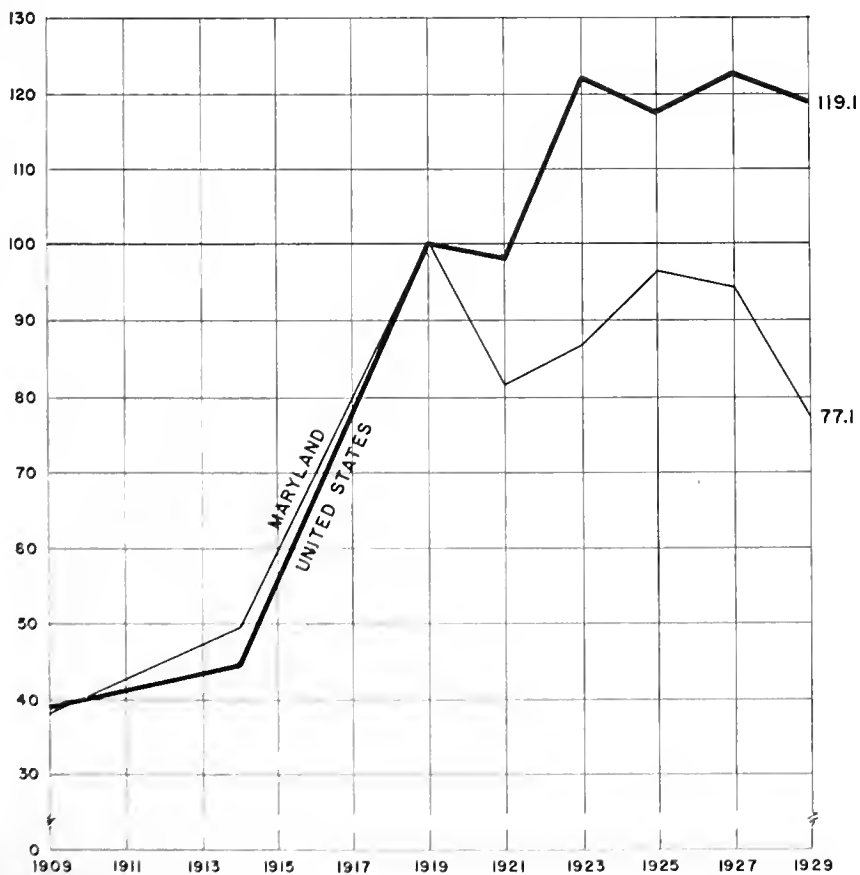


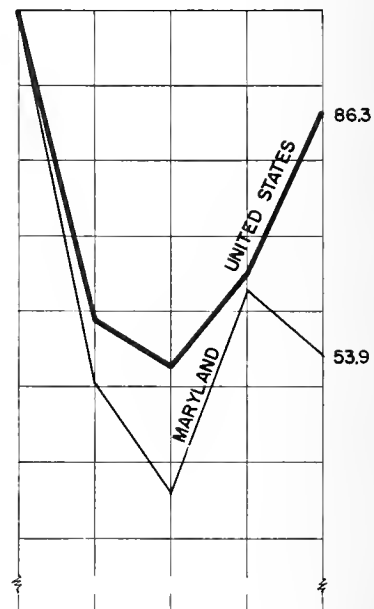
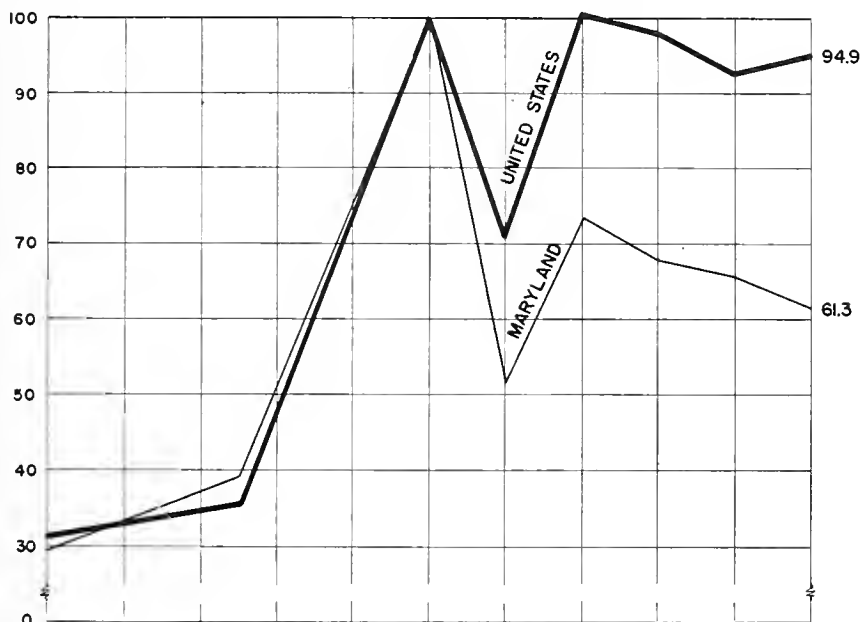
EXHIBIT-21A

ECONOMIC STUDIES OF MARYLAND, PART III

TEXTILES

1909-1937

PRODUCT VALUE



VALUE ADDED BY MANUFACTURE

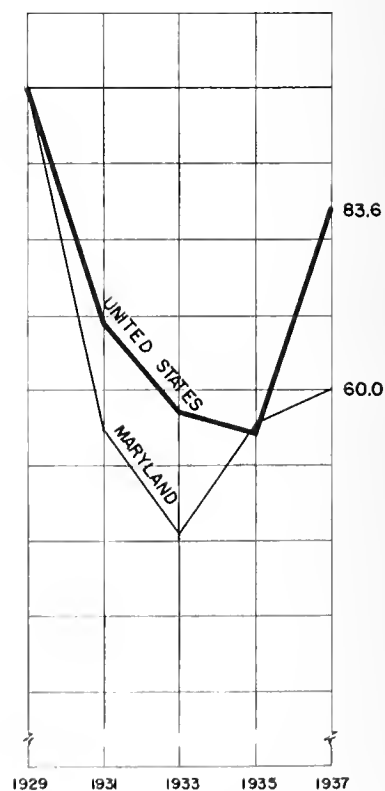
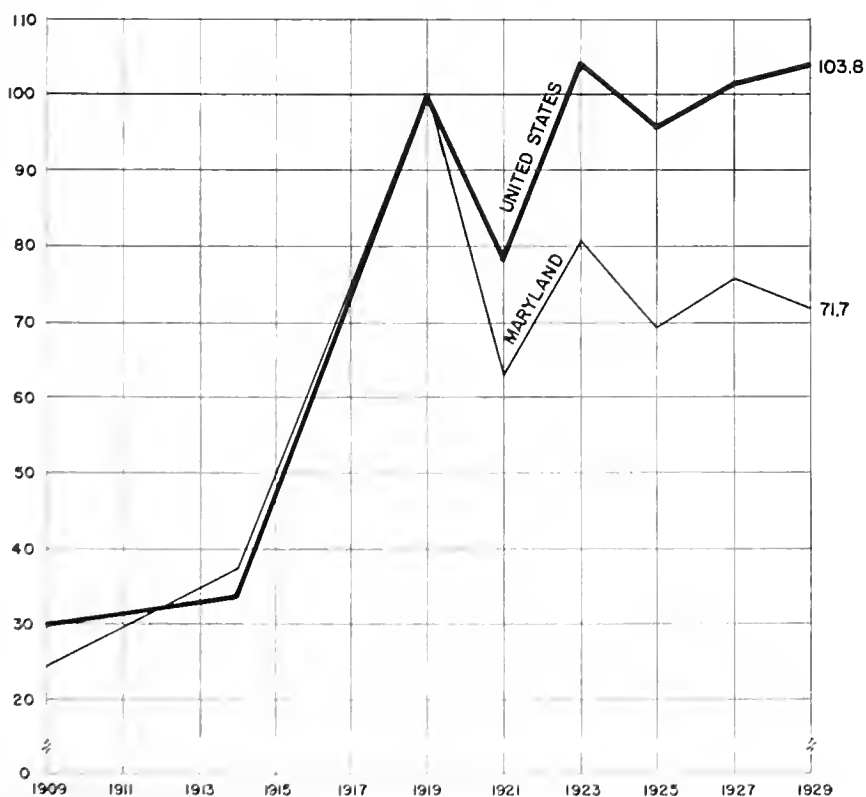


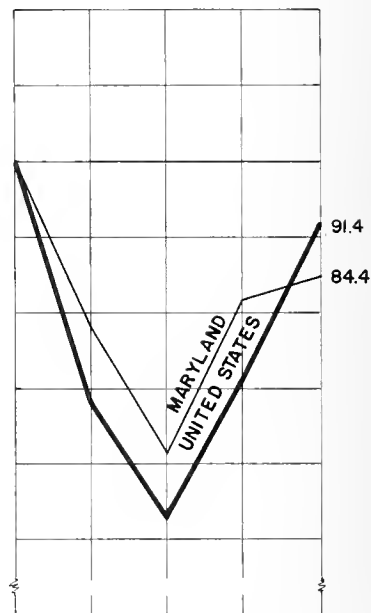
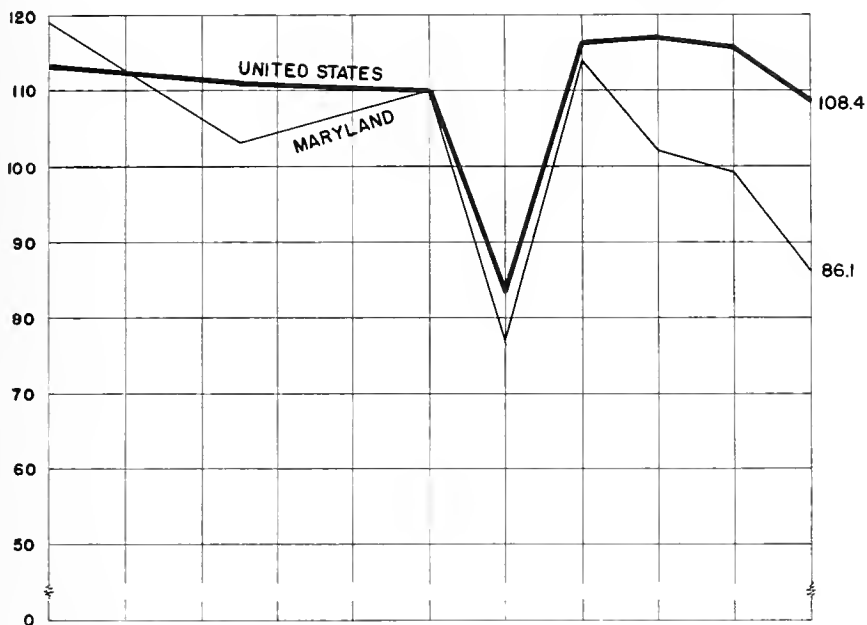
EXHIBIT- 22

ECONOMIC STUDIES OF MARYLAND, PART III

CLAY, GLASS & STONE

1909-1937

EMPLOYMENT



WAGES

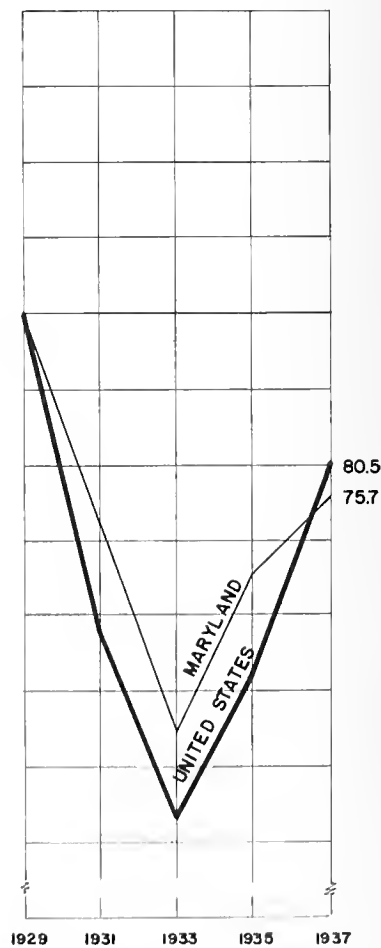
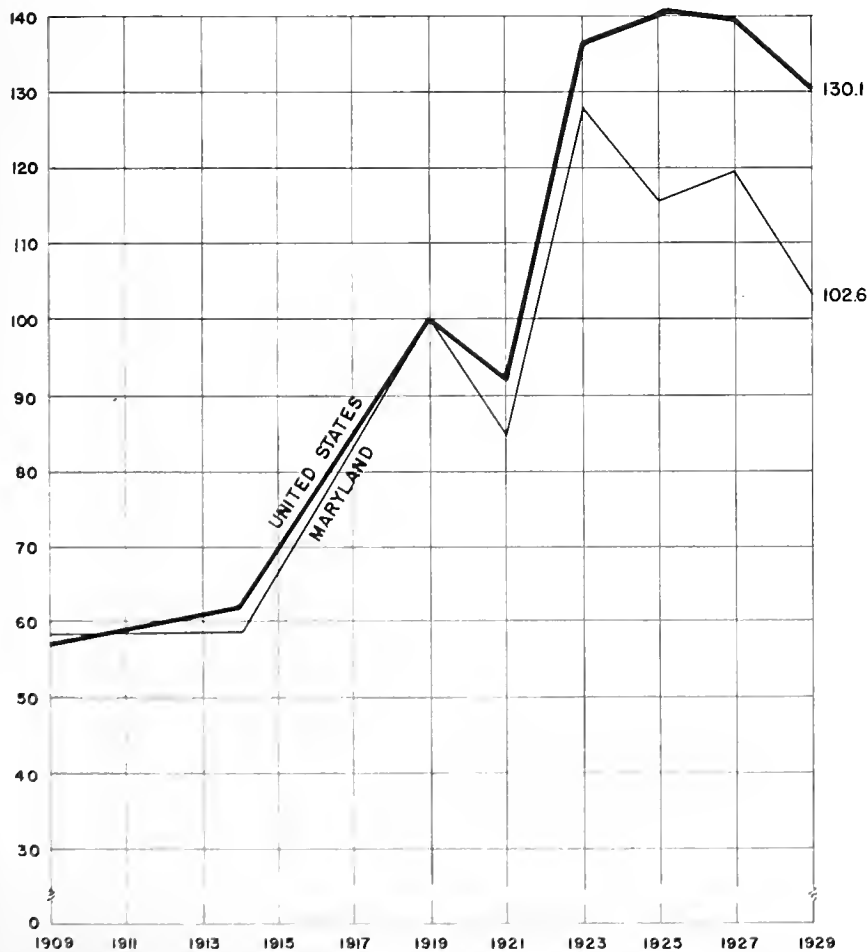


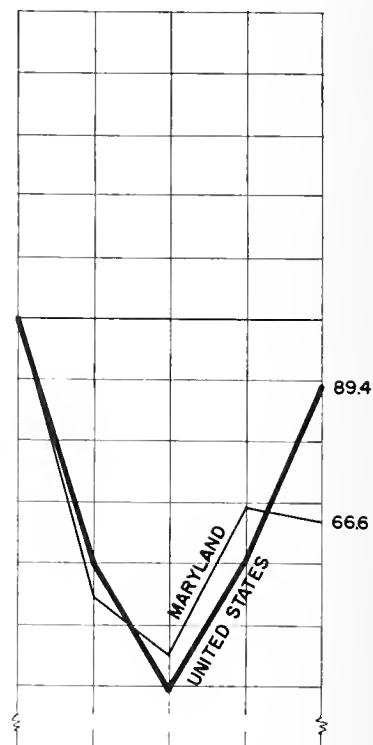
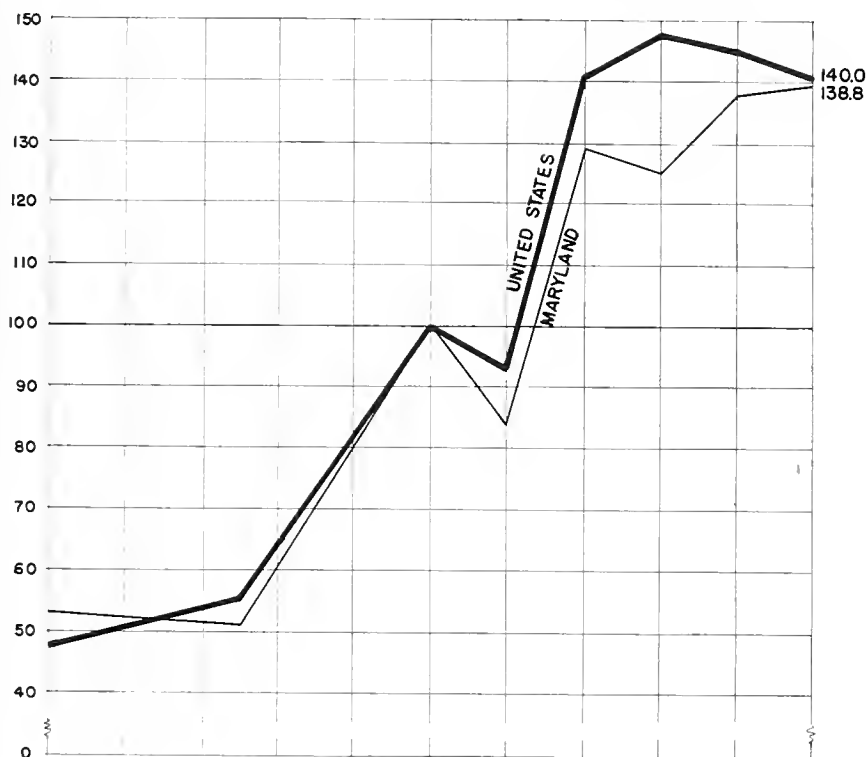
EXHIBIT-22A

ECONOMIC STUDIES OF MARYLAND, PART III

CLAY, GLASS & STONE

1909-1937

PRODUCT VALUE



VALUE ADDED BY MANUFACTURE

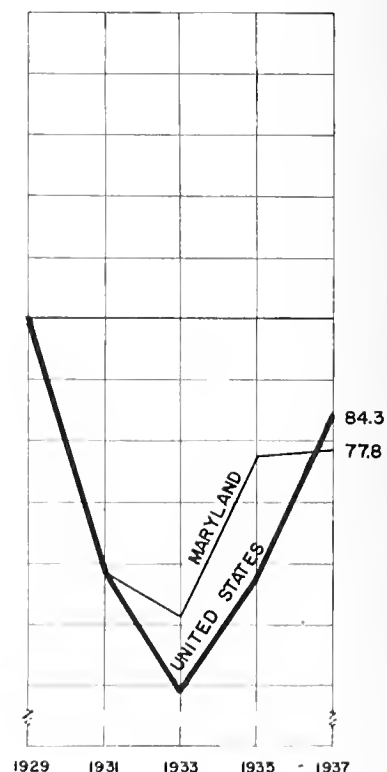
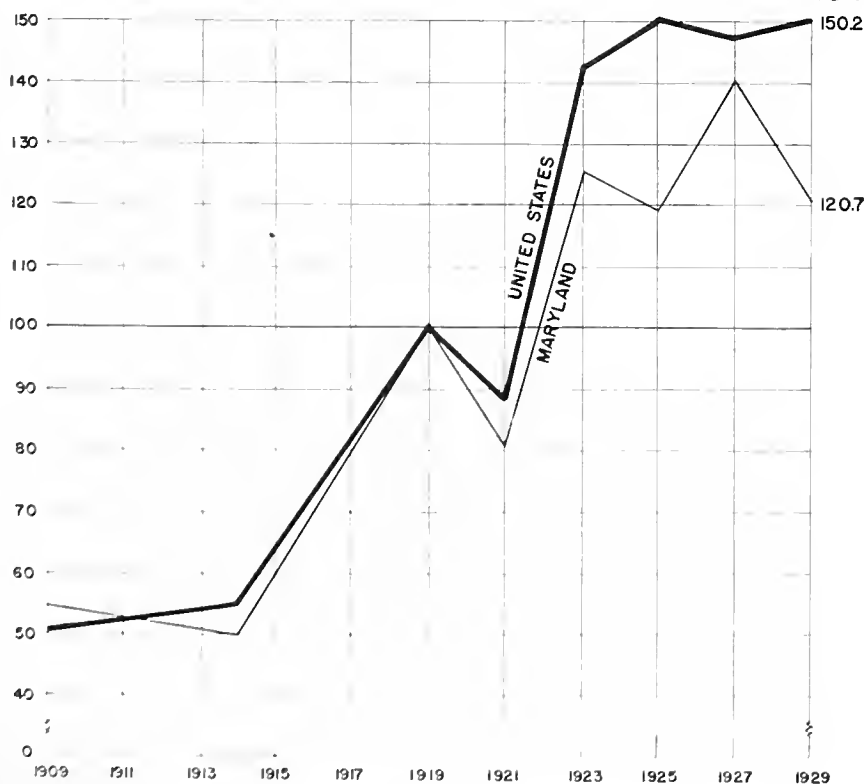


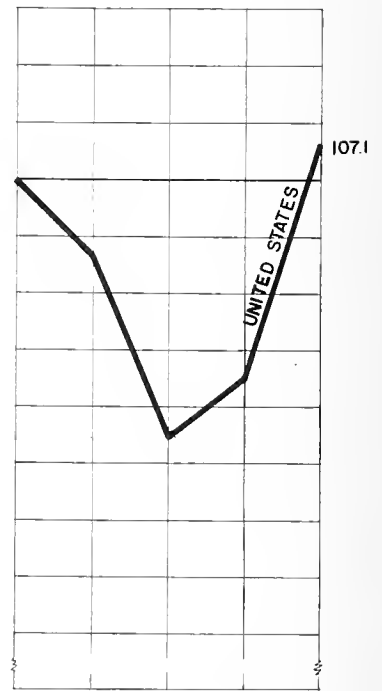
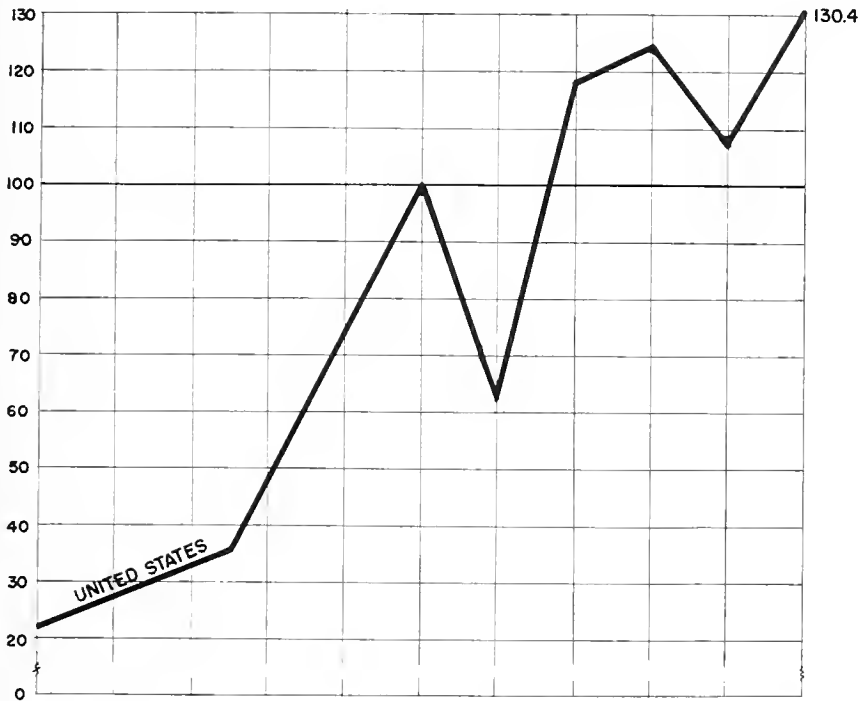
EXHIBIT-23

ECONOMIC STUDIES OF MARYLAND, PART III

AUTOMOBILE FACTORIES

1909-1937

EMPLOYMENT



WAGES

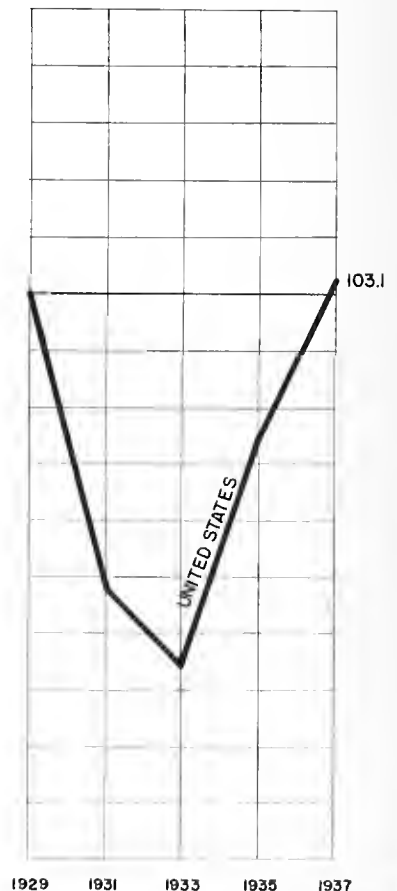
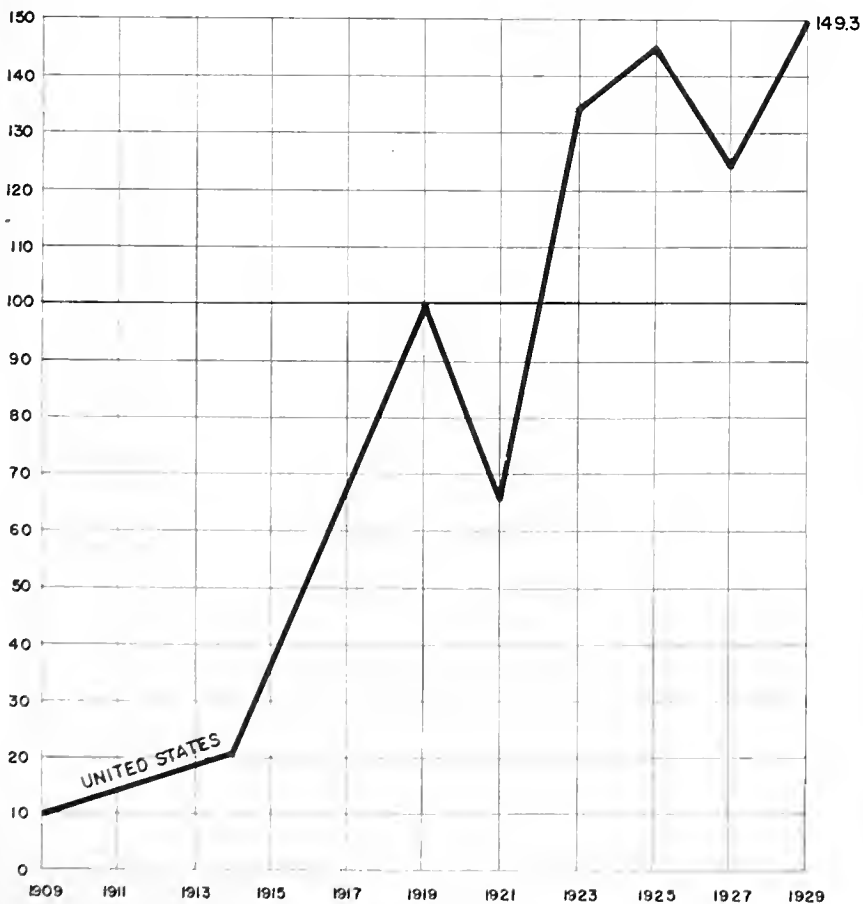


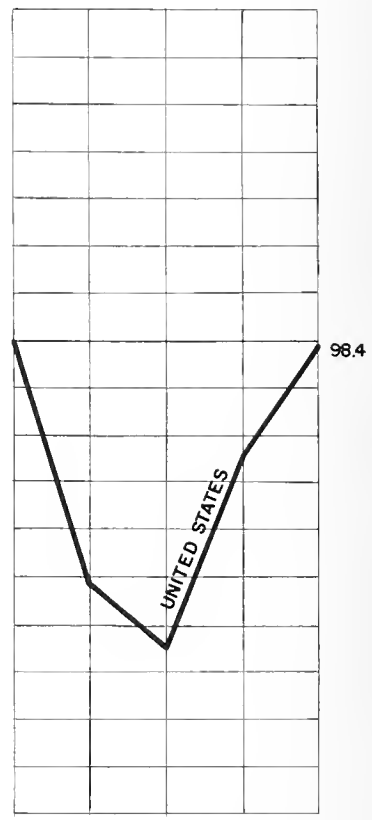
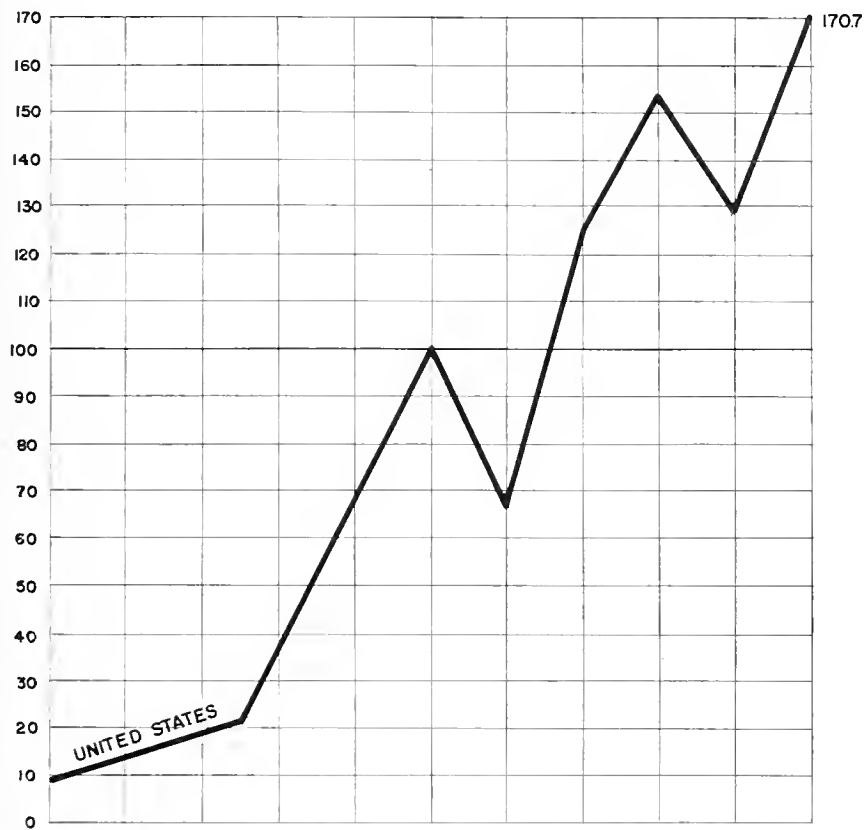
EXHIBIT-23A

ECONOMIC STUDIES OF MARYLAND, PART III

AUTOMOBILE FACTORIES

1909-1937

PRODUCT VALUE



VALUE ADDED BY MANUFACTURE

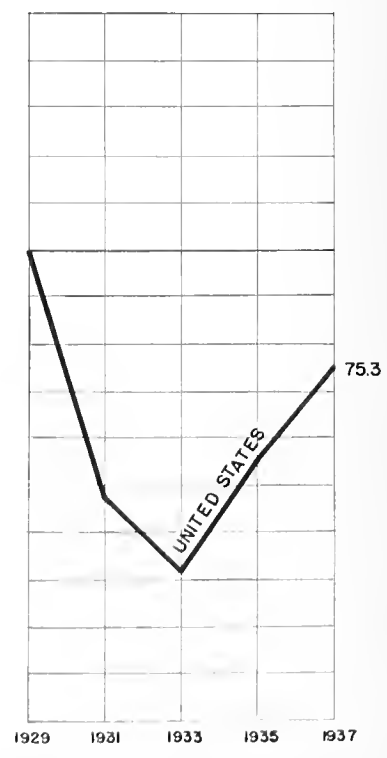
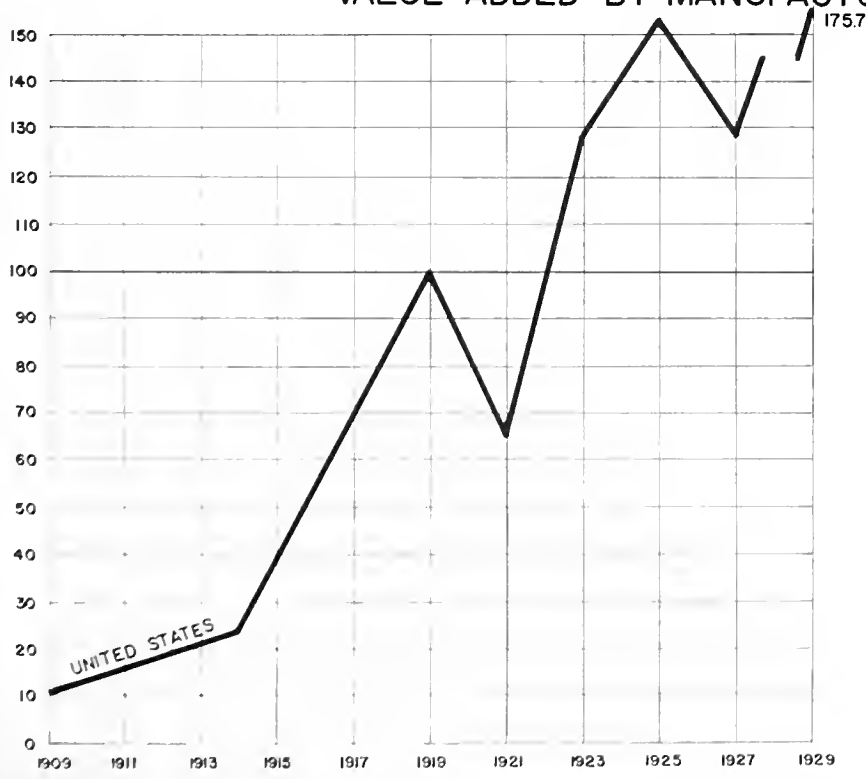


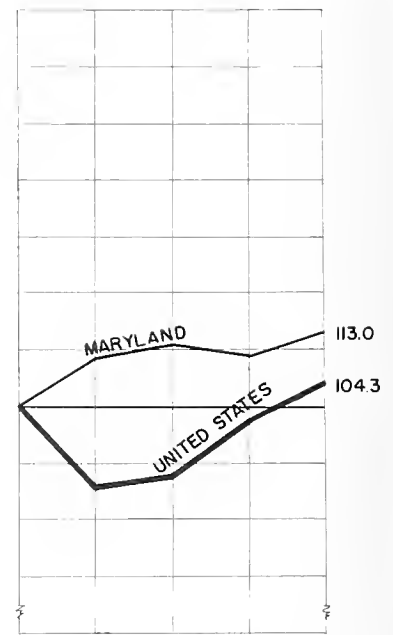
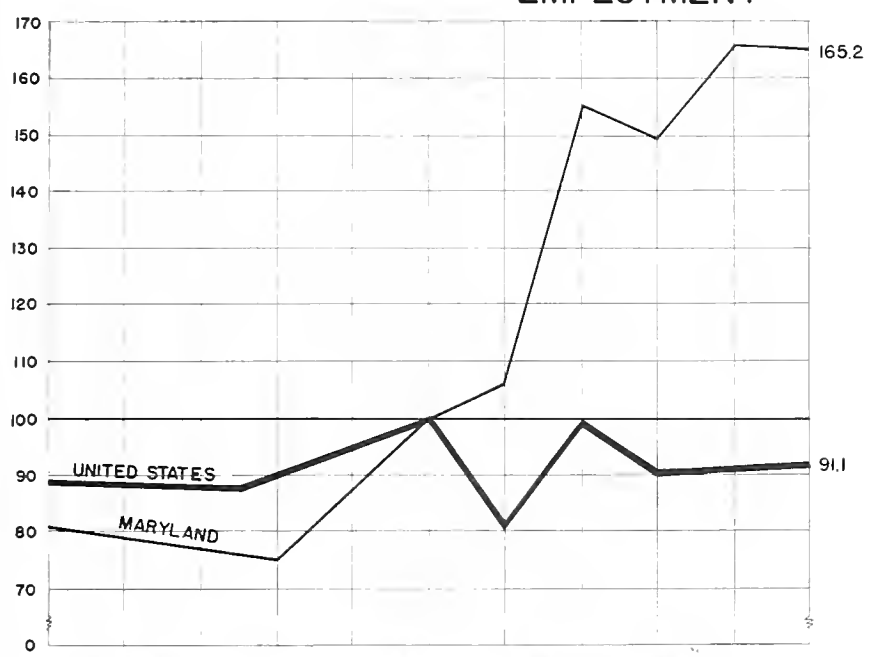
EXHIBIT-24

ECONOMIC STUDIES OF MARYLAND, PART III

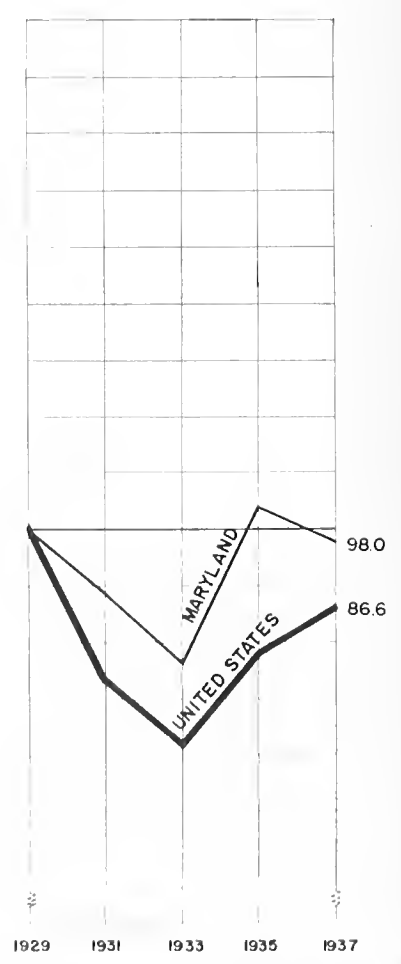
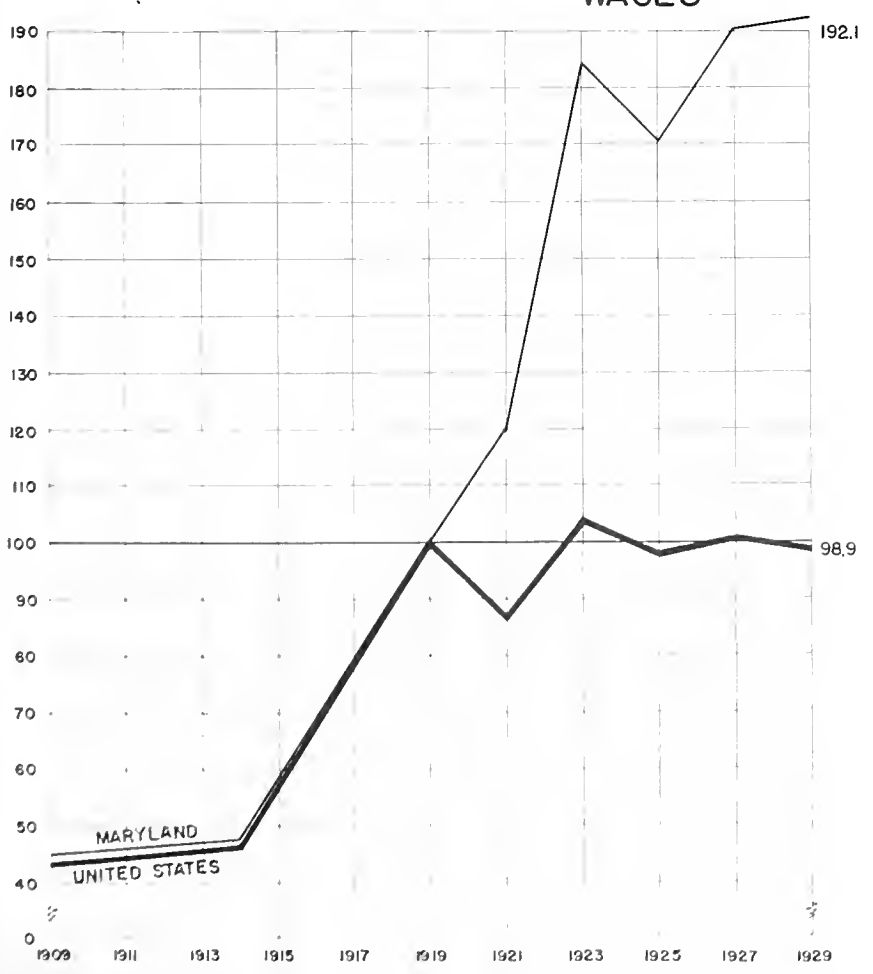
LEATHER & ALLIED

1909-1937

EMPLOYMENT



WAGES

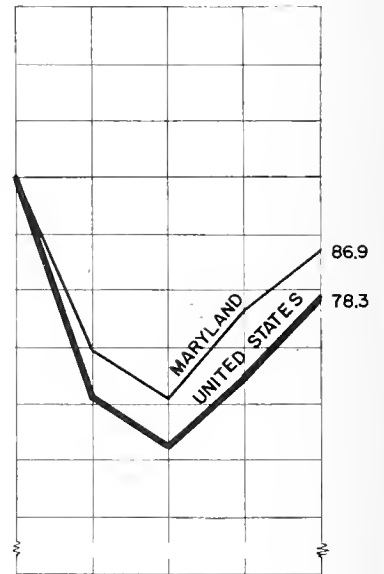
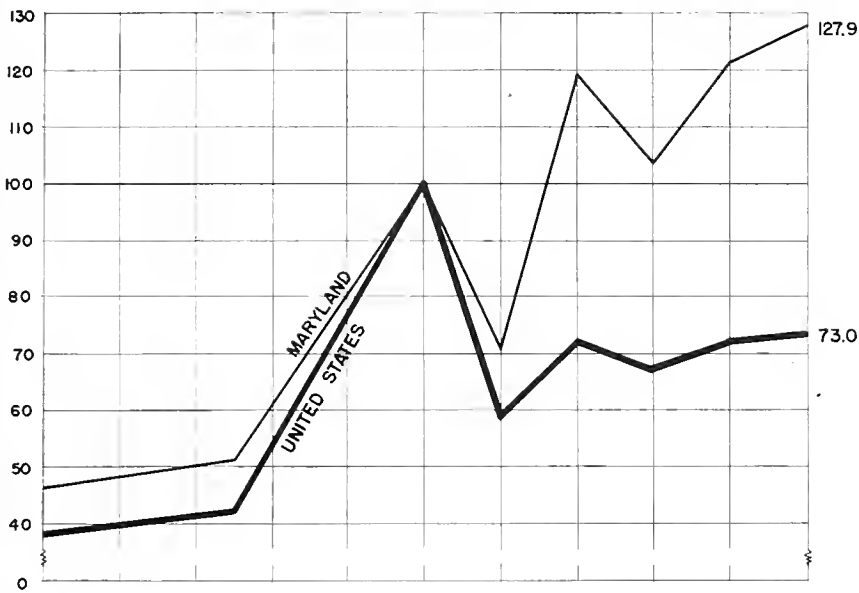


ECONOMIC STUDIES OF MARYLAND, PART III

LEATHER & ALLIED

1909-1937

PRODUCT VALUE



VALUE ADDED BY MANUFACTURE

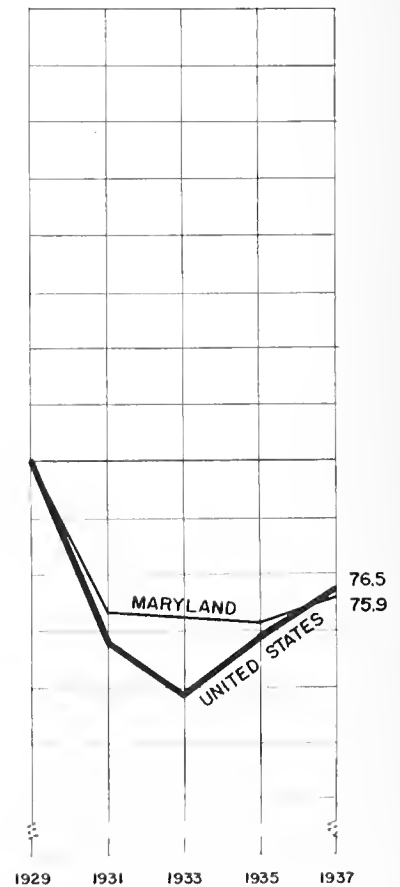
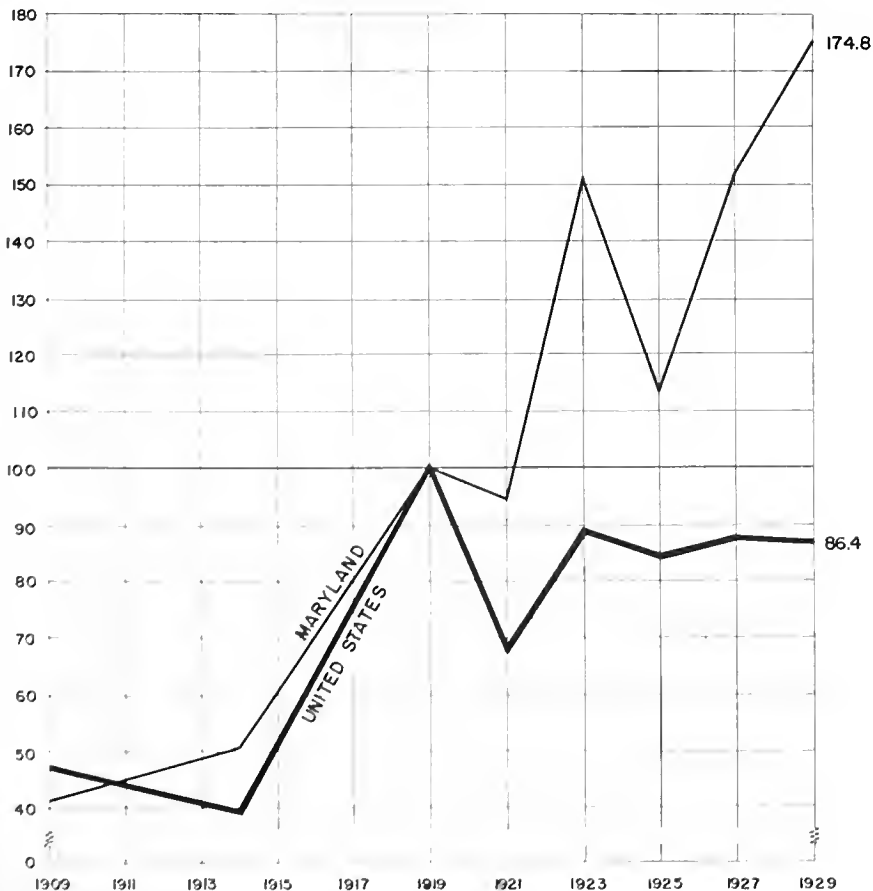


EXHIBIT - 25

ECONOMIC STUDIES OF MARYLAND PART ■ III

PERIODS SELECTED

FOR ANALYTIC PURPOSES

1909 1919 1925 1929 1933 1935 1937

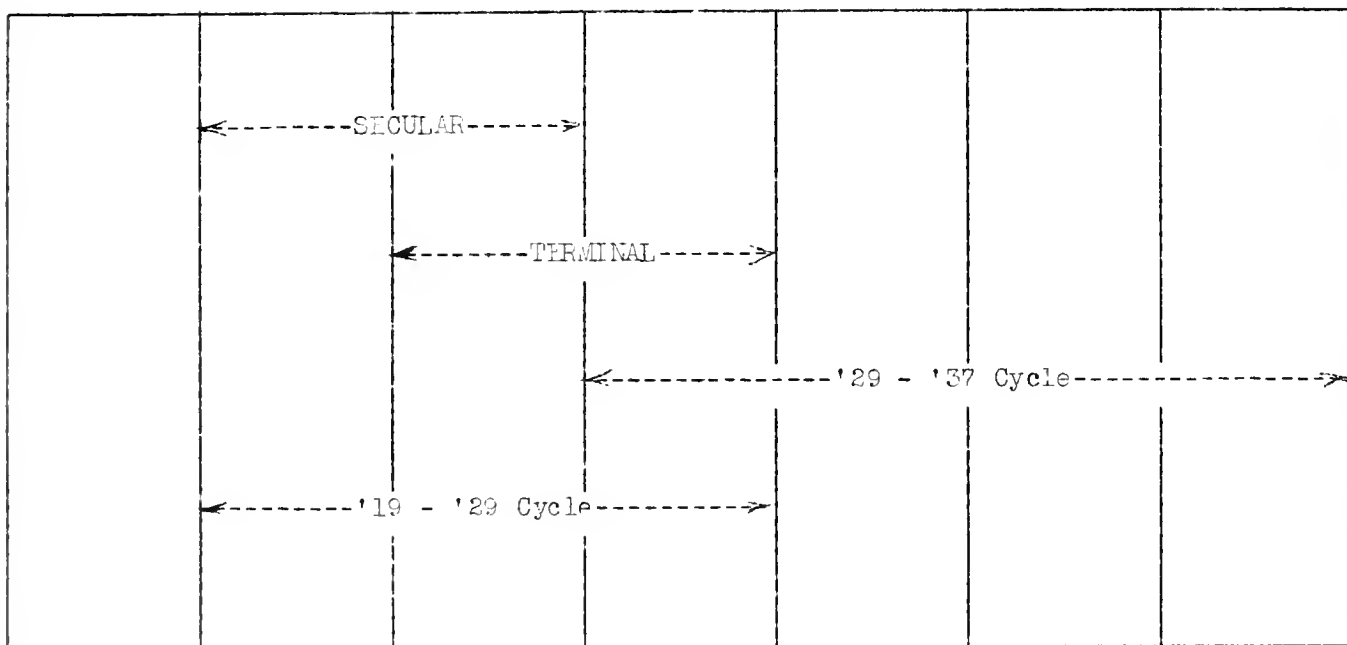


EXHIBIT 26

An Interpretive Summary of Employment in the
Manufacturing Industries of Maryland Collectively.

For the Recovery Phase of the '19 - '29 Cycle and the Complete '29 - '37 Cycle

1919 - 1929 Cycle

	Md. %	U. S. %	Dep.
<u>Recovery '21 - '29</u>	+22.4	+27.2	-4.8
<u>Terminal '25 - '29</u>	+ 4.2	+ 5.3	-1.1

1929 - 1937 Cycle

	Md. %	U. S. %	Dep.
<u>Total '29 - '37</u>	+11.4	- 2.9	+14.3
<u>Recession '29 - '33</u>	-23.5	-31.4	+ 7.9
<u>Recovery '33 - '37</u>	+45.6	+41.5	+ 4.1

Interpretive Summary of Secular and Cyclical Employment Characteristics
of Selected Maryland Manufacturing Industries

-----1909 - 1929 Secular Period-----

Predominant Industries	Secular Period			Terminal Period				
	1909 to 1929			1925 to 1929				
	Md. %	U. S. %	Dep. Order of perf.	Md. %	U. S. %	Dep. Order of perf.		
Other Iron and Steel	+57.4	-13.1	+75.5	2.	+16.3	+ 1.9	+14.4	1.
Non-Ferrous Metals	-57.0	+26.6	-83.6	9.	-40.0	+13.8	-53.8	10.
Chemicals and Allied	+50.4	+47.9	+ 2.5	4.	+ 2.7	+16.6	-13.9	5.
Food and Allied	- 4.6	+83.1	-87.7	10.	- 7.1	+13.4	-20.5	8.
Textiles	-27.1	+24.6	-51.7	8.	-15.7	+ 0.9	-16.6	7.
Clothing	-11.5	+ 8.1	-19.6	5.	- 0.9	+14.9	-15.3	6.
Paper, Printing and Allied	+47.0	+42.0	+ 5.0	3.	-13.1	+10.2	-23.3	9.
Stone, Clay and Glass Products	-27.1	- 4.2	-22.9	6.	-15.7	- 7.0	- 8.7	4.
Lumber and Allied	-37.1	- 3.4	-33.7	7.	- 9.9	- 4.9	- 5.0	3.
Leather and Allied	+105.0	+ 2.7	+102.3	1.	+10.9	+ 1.3	+ 9.6	2.

Dep. = Departure Perf. = Performance

Interpretive Summary of Seasonal and Cyclical Employment Characteristics
of Selected Maryland Manufacturing Industries

1919 - 1929

Predominant Industries	Total				Recession (1)				Recovery			
	1919 to 1929				1919 to 1921				1921 to 1929			
	Ind. %	U. S. %	Dep. %	Order of Perf.	Ind. %	U. S. %	Dep. %	Order of Perf.	Ind. %	U. S. %	Dep. %	Order of Perf.
Other Iron and Steel	-47.9	-25.5	-22.4	8.	-33.2	-37.2	-1.0	5.	-15.7	-14.6	-24.3	9.
Non-Ferrous Metals	-58.7	+ 5.3	-62.0	10.	-50.3	-30.2	-20.6	10.	-16.1	+48.0	-64.1	10.
Chemicals and Allied	- 9.5	- 6.8	- 2.8	3.	-23.5	-32.3	+ 9.0	3.	+18.2	+37.7	-19.5	6.
Food and Allied	-15.0	+ 2.7	-15.7	5.	-32.8	-14.6	-18.2	9.	+29.5	+20.3	+ 9.2	2.
Textiles	-21.0	+ 6.3	-27.3	9.	-13.7	- 6.0	- 7.7	7.	- 8.5	+15.1	-21.6	7.
Clothing	+ 6.3	+ 5.7	+ 0.6	2.	+ 3.1	- 6.7	+ 9.8	2.	+ 3.1	+15.3	-10.2	4.
Paper, Printing and Allied	+ 1.9	+15.0	-14.0	4.	- 2.0	- 8.4	+ 6.4	4.	+ 4.0	+25.5	+22.5	8.
Stone, Clay and Glass Products	-13.9	+ 8.4	-22.5	7.	-23.1	-16.5	- 6.6	6.	+12.0	+29.8	-17.8	5.
Lumber and Allied	-16.1	+ 1.4	-17.5	6.	-29.8	-18.6	-11.2	8.	+19.5	+24.6	- 5.1	3.
Leather and Allied	+55.2	- 8.9	+74.1	1.	+ 6.2	-19.8	+26.0	1.	+55.6	+13.6	+42.0	1.

(1) The low point of the "Recession", expressed in percentage of the base year, is obviously always equal to 100% minus the Recession percentage.

EXHIBIT 27 (cont'd)

Interpretive Summary of Secular and Cyclical Employment Characteristics
of Selected Maryland Manufacturing Industries

1929 - 1937

Predominant Industries	Total				Recession				Recovery			
	1929 to 1937				1929 to 1933				1933 to 1937			
	Md. %	U. S. %	Dep. %	Order of Perf.	Md. %	U. S. %	Dep. %	Order of Perf.	Md. %	U. S. %	Dep. %	Order of Perf.
Other Iron and Steel	-29.7	-17.0	-12.7	3.	-42.7	-50.2	+ 7.5	4.	+22.7	+66.7	-44.0	10.
Non-Ferrous Metals	-37.5	-14.1	-23.4	10.	+21.1	-40.2	+61.5	1.	-48.4	+43.6	-92.0	11.
Chemicals and Allied	+ 3.6	+10.0	- 6.4	5.	-32.2	-15.2	-17.0	11.	+52.8	+29.7	+23.1	2.
Food and Allied	+37.8	+17.9	+19.9	2.	- 4.8	-11.6	+ 6.8	5.	+44.7	+33.4	+11.3	3.
Textiles	-27.1	+ 8.8	-35.9	11.	-24.2	-13.6	-10.6	10.	- 3.8	+25.9	-29.7	8.
Clothing	- 8.0	+ 0.7	- 8.7	7.	-15.2	-13.7	- 1.5	8.	+ 8.5	+16.6	- 8.1	5.
Paper, Printing and Allied	+ 7.5	+ 4.4	+ 3.1	4.	-18.0	-22.3	+ 4.3	6.	+31.1	+34.4	- 3.3	4.
Stone, Clay and Glass Products	-15.6	- 8.6	- 7.0	6.	-38.8	-47.3	+ 8.5	3.	+37.9	+73.4	-35.5	9.
Lumber and Allied	-39.7	-20.8	-18.9	9.	-57.5	-47.6	- 9.9	9.	+41.9	+51.1	- 9.2	6.
Leather and Allied	+13.0	+ 4.3	+ 8.7	3.	+10.9	-11.4	+22.3	2.	+ 1.9	+17.7	-15.8	7.
Blast Furnaces and Steel Rolling Mills	+49.7	+11.3	+38.4	1.	-30.7	-31.2	+ 0.5	7.	+116.0	+61.8	+54.2	1.

- EXHIBIT 27a -

Explanation of the Method of Constructing Exhibit 27.

The preceding tabulations which are entitled an "Interpretive summary of the Secular and Cyclical Characteristics of Employment in Maryland's Manufacturing Industries" are essentially a comparison of the employment trends of a given industry as they were in Maryland and the employment trends of the same industry for the United States as a unit. The difference between the trends for these two political sections is termed a departure (the figures in the third column in each period of Exhibits 26 and 27); it is the divergence of a Maryland industry from the national performance of that industry.

For purposes of analysis the period 1909 - 1937 was subdivided into several parts (cf. Exhibit 25, page 66) and departures were calculated for each of these component periods.

The method of determining these departures is as follows:-

For each industry which appears in Maryland, trends of employment are computed from the data of the U. S. Biennial Census of Manufactures. These trends are in the form of an index which uses as its base of 100 the employment of the year 1919 for the secular period 1909 - 1929, while the figures for 1929 are taken as the base for the cyclical period 1929-1937. The same sources of data and method are used in order to determine the trends of employment for the United States as a whole.

Thus when we desire to make a comparison of an industry's performance in Maryland and its performance in the nation as a whole, we calculate the change for the industry from, let us say, 1909 - 1929, merely by the simple process of using the 1909 index as 100 and calculating a 1929 index in terms of this base. The difference between the 1929 index obtained by this calcula-

- EXHIBIT 27a (cont'd) -

tion, and the 1909 index, which was taken as 100, is the percentage change for that period. If it rose we prefixed a plus sign to it; if it fell we prefixed a minus sign. The same procedure is followed for the national trend of the industry. The departure, is then established by algebraically subtracting the United States change from the Maryland change.

An example of this would be the Clothing industry. Its Maryland index for 1909 is 120.1 and for 1929 is 106.3; the 1929 index in terms of 1909 is $106.3 \div 120.1 = .885$ or 88.5%. A fall of 11.5% in the 1909-1929 period. The United States Clothing index for 1909 is 97.8 and for 1929 is 105.7; the 1929 index in terms of 1909 is $105.7 \div 97.8 = 1.081$ or 108.1%. A rise of 8.1% in the '09-'29 period. Thus the departure of the Maryland trend from the U. S. trend is the Maryland change (-11.5), minus the U. S. change (+8.1), this is -19.6, i.e., the Clothing Industry in Maryland performed 19.6 percentage points worse than did the Clothing Industry for the nation as a whole.

Precisely the same method is used to determine the departures for the other periods selected. The first year in each period is taken as a base year and all changes are calculated in terms of this.

For the cyclical period 1919-1929, the year 1921 is taken as the low point of an industrial decline and the departures for this period and the subsequent recovery period (1921-1929) are determined; while for the cyclical period '29-'37, the year 1933 is taken as a low and the recovery is from 1933 to 1937.

In each one of the periods, after the determination of the magnitude and nature of the departure, every industry is numbered according to its degree of departure. Those industries which have positive departures are placed first, in the order of magnitude of departure, while those with negative departures follow, their position becoming lower as the magnitude of the decline grows. Thus in the recovery period '09-'29, Leather and Allied is first with a positive departure of 102.3, while Food and Allied is last in virtue of its negative departure of 87.7.

CHAPTER 6

INDUSTRIAL AND SECTIONAL CRITERIA - DEPARTURES

Whenever we relate some change, such as a change in employment, in a Maryland Industry, let us say, the Clothing Industry, to the change in national employment in the same Industry, the change in each case occurring in the same time period, we are using the national change as a "criterion" and determining the divergence or "departure" of the State change from its "criterion".

Thus, the charts of the ten Manufacturing Industries presented in the preceding chapter (Exhibits 13 to 24 inclusive) provide us with information for determining for each Industry the "Industry Criteria" for (1) Employment; (2) Wages; (3) Product Value; and (4) Value Added by Manufacture. They also provide the information for determining Maryland's "Departures" from the "Industry Criteria". Now, any Departure must relate to some specific time period. Since the graphics of the ten Manufacturing Industries presented in Chapter 5, cover a time period of twenty-eight years (1909 - 1937), we are quite at liberty to subdivide this time period as we wish and then determine both Criteria and Departures for each of these subdivisions.

The time periods we have selected, and the reasons for such selection, are those set forth and discussed on page 36, Chapter 5. These periods are graphically indicated in Exhibit 25, page 66.

Without the "Departures" method, we could, of course, have observed for each Maryland Industry the changes in employment, wages, product value,

etc. for each of the selected periods. The determination of the Criteria and Departures of the various Maryland Industries for each of the selected periods (as set forth in Exhibits 27 and 27a, pages 68 to 70) enables us to consider another important phase in the changing economy of the State, namely, the changing position of Maryland's several Industries in their respective inter-state fields. Departures of employment, wages, etc. for the various Industries shown in Exhibit 27, are classified under the general term "Industry Departures" to distinguish them from "Sectional Departures" to be described later in this chapter.

Bureau of Labor Statistics Series:

This B. L. S. series provides information relating only to changes in employment and wages; but it provides these data on a monthly basis as contrasted with the biennial figures of the Census of Manufactures series. Since it goes back only to 1929, it does not contribute to the consideration of our "Secular" and "Terminal" periods, but it does contribute materially to the consideration of employment and wage change subsequent to 1929, and therefore to the "cyclical" changes of the '29 - '37 "cycle". Since the B. L. S. series is by Industry classifications and since employment and wage trends for those classifications are available for Maryland as well as for the Nation, "Criteria" and "Departure" determinations are possible for employment and wages subsequent to 1929. Thus, for employment and for wages we have, for periods subsequent to 1929, two statistical series - the C. of M. and the B. L. S. - each independently indicating "Industry Departures" as well as employment and wages change. This brings us to the subject of "Sectional Criteria".

Sectional Criteria:

If for any community of a state, such as one of Maryland's "Industrial Sections" we have established a "Base Pattern" of its Predominant Industries; and if we have a continuing knowledge (1) of the changing importance of each of such Industries to the "Section"; and (2) of the changing position or importance of each of these local Industries in their respective national fields as indicated by changes in such factors as employment, wages, etc., in the several Industries, we should be able to translate the changes in such "Industry Factors" into changes in certain "economic factors" such as employment, income, purchasing power etc., of the community - the Section under consideration, with the ultimate objective of indicating whether the gain or loss of competitive position of the several Predominant Industries of the Section has resulted in a gain or loss in competitive position of the Section in the field of inter-state commerce.

If a Section, for example, has three Predominant Industries A, B and C, and we have established the "Industry Criterion" and the "Industry Departures" for each of these three Industries, by the methods described on pages 74 and 75, our next step is to determine a composite Industry Criteria for the particular Section under consideration. This as stated, we have called a "Sectional Criterion" and it has been constructed in the following manner.

Exhibits 28 and 29, pages 78 and 79, show "Sectional Criteria", (relating to employment only) in the six "Industrial Sections" of Maryland, derived from the B. L. S. series of employment. They were constructed in

this way. If the "Base Pattern" of a Section showed three Predominant Industries whose importance (occupational importance) was indicated as follows:

Industry A	60%	
Industry B	30%	
Industry C	10%	
	<u>100%</u>	Total gainfully occupied in A, B and C in this Section.

this established a base for weighing occupations in the year 1929. Having before us the national trend of employment (the Industry Criterion) for each of the three Industries for the period subsequent to 1929, we were able to construct a "Sectional Criterion" of employment in the following way.

If, for any particular year, such as 1933, the several Industry Criteria showed that employment in A was 60%; B 40%; and C 30% of the 1929 employment in these several Industries, then the "Sectional Criterion" of employment for the Section in the year 1933 was derived as follows:

$$\begin{aligned}
 A &= .60 \times .60 = .36 \text{ or } 36\% \\
 B &= .30 \times .40 = .12 \text{ or } 12\% \\
 C &= .10 \times .30 = .03 \text{ or } 3\%
 \end{aligned}$$

$$\text{Sectional Criterion for '33} = .51 \text{ or } 51\%$$

Following this procedure for each of the years subsequent to 1929, a plot of these points provided the "Sectional Criterion" for the Section under consideration.

In this manner, a "Sectional Criterion" was established for each of the 96 "Rural Industrial Sections" and the 376 "Urban Sections" of the United States. They are shown, as stated above, for the six Maryland Sections in Exhibits 28 and 29 on pages 78 and 79.

If we were examining the "recession lows" of these Industrial Sections (one of the phenomena of the '29 - '37 "cycle") we would find from the "Sectional Criteria" of the 376 cities that West Palm Beach, Fla. showed the greatest recession drop, falling to 27.8% of the 1929 employment, while

Brockton, Mass. showed the least recession drop, falling to only 81.3% of 1929 employment. Baltimore, by the way, dropped to 50.6%. In the Rural Industrial Sections, Section B-2 lying in the State of Idaho, showed the greatest recession drop to 30%, while Section I-10 lying in the State of Michigan showed the least recession drop (68.1%). None of Maryland's Rural Industrial Sections dropped below 39.7% (Rural Industrial Section I-3).

Now, if anyone were to conclude from these observations of the Sectional Criteria that Industrial employment in the productive Industries in any of the Sections actually dropped to the extent indicated, his conclusion would be utterly invalid.

These figures are not indices of employment but criteria of employment.

As indices they would be invalid; as criteria they are valid and extremely useful.

Let us consider for a moment the criterion of Baltimore's "recession low", 50.6%. This does not indicate that Baltimore's employment in the productive Industries was 50.6% of its 1929 employment. It indicates this:

That Baltimore's low of employment in these Industries would have been 50.6% if each of the Industries had behaved as did the same Industries on a national basis. Plus one other assumption, namely, that the weight of employment in Baltimore's Predominant Productive Industries was as indicated in Baltimore's Industrial Pattern of 1930. Now we are quite aware that Baltimore's Productive Industries did not behave as did the same Industries on a national basis. It was because of our cognizance of this that we developed the "Industrial Departures" for this purpose of indicating (statistically) those Industries which were departing from their national change patterns, and to indicate the manner or kind of departure (secular or cyclical).

Now, if our objective were to determine an index of employment for Baltimore, and definitely this is not our objective, we might, since we have knowledge of the Industrial Departures in employment of the several productive Industries of Baltimore for the year 1933, add or subtract these departures, weighed the occupational distribution in the Section as of 1930, to or from Baltimore's Sectional Criteria for 1933 (50.6%) and thus arrive at a "corrected" recession low. Even this would provide a very questionable if not an invalid "index" because of the probability of multiplying errors in such a statistical procedure.

But if we do not consider these "Sectional Criteria" as indices, and it is not our objective to obtain a Sectional index of employment, the following approach is entirely rational:

- First: The adoption of a "Sectional Criterion" as being representative of a condition which would have existed had the selected Industries of the Section performed in the Section as they did nationally for the same period.
- Second: Tentatively evaluating the distortion or modification of this "Sectional Criterion" as indicated by the "Industry Departures" of the Section.
- Third: Validating or invalidating the statistical indications of "Industrial Departures" as developed in Chapter 9 of Part IV.
- Fourth: Never combining the validated Industry Departures or validated Industry changes (in employment, wages, etc.) of the various Industries of a Section into a "composite index". Always evaluating changes of Sectional economic factors, such as income, wages, etc. by keeping separate the Industrial factors of the Section which are responsible for them.
- Fifth: The changes of the economic factors of a Section can then and only then be compared with the changes of the Sectional Criteria.

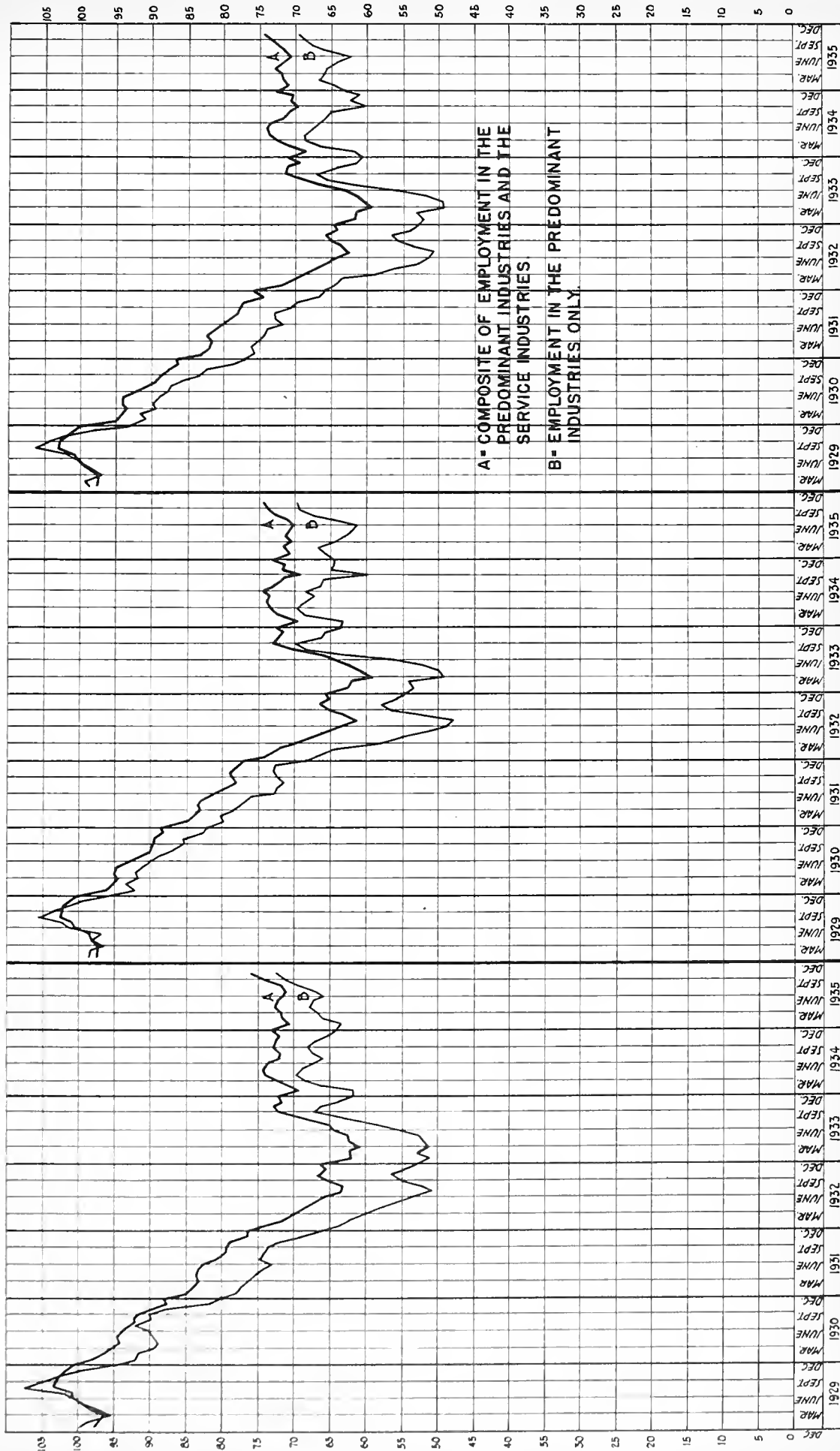
This is equivalent to saying that we can only determine valid "Sectional Departures" from the "Sectional Criteria" when the three phases of the economic study of the Section are completed. And it is equivalent to saying another thing. Both "Industrial" and "Sectional" Departures derived from statistical series are acceptable as indicators of Industrial or of Sectional change. For this purpose they are extremely useful. They are, however, not acceptable as evidences of change until their validity has been established and the causes of change explained by such a procedure as that contemplated in Chapter 9 of Part IV.

SECTIONAL CRITERIA

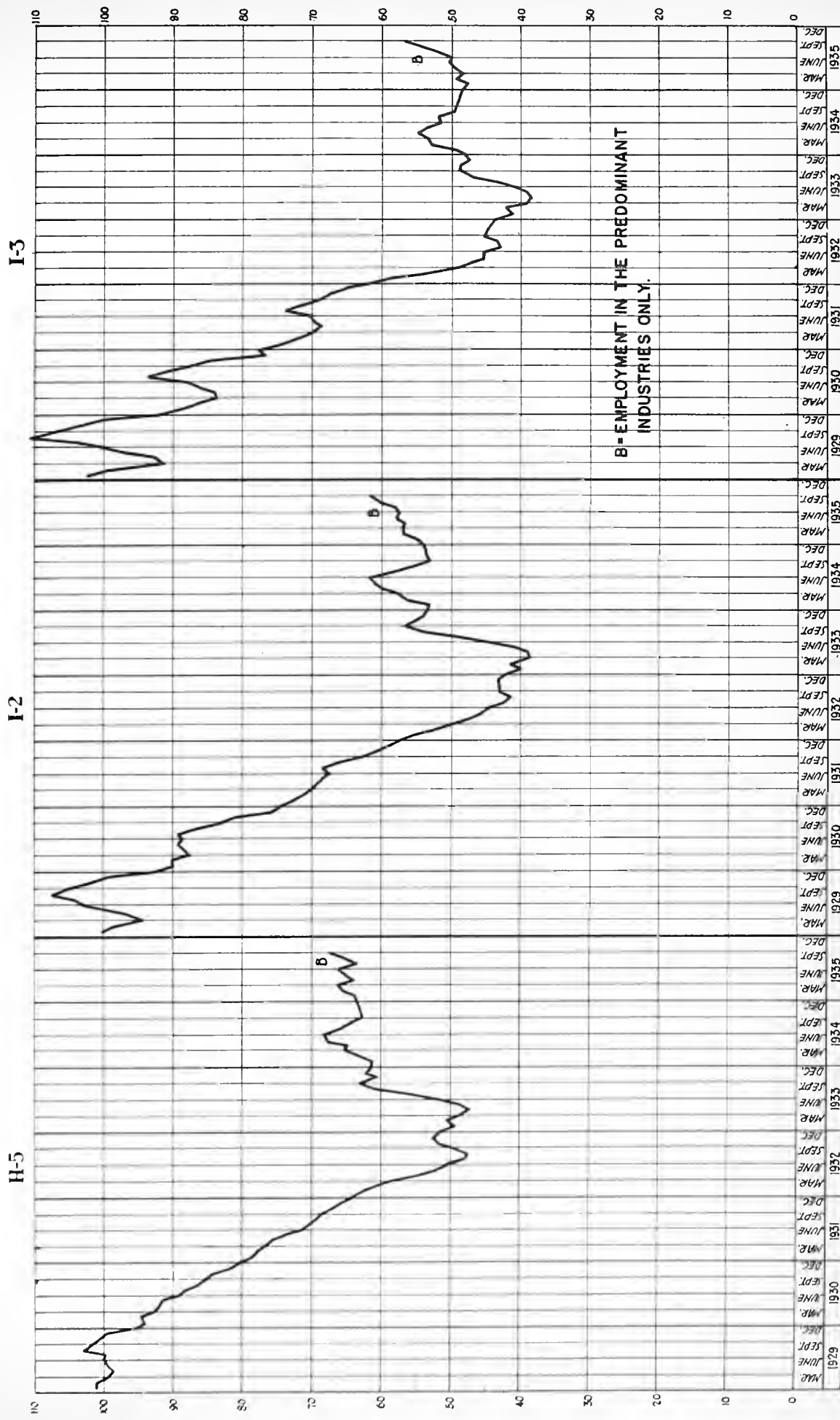
BALTIMORE

CUMBERLAND

HAGERSTOWN



SECTIONAL CRITERIA



CHAPTER 7

INCOME CHANGES - INCOME (1) BY KIND; (2) BY INDUSTRIAL CLASSIFICATION - INCOME "DEPARTURE"

Literally, all of the information relating to Maryland's income, presented in this Chapter, is derived from the National Industrial Conference Board publication, "Income Received In The Various States 1929-1935".

We have merely changed the graphical presentation of the material so as to adapt it to the methods of analyses used in the Economic Studies of Maryland.

Exhibit 30, page 82 constructed from indexes of income, shows by years, for the period 1929 - 1935 inclusive, for both Maryland and the United States:

	Total Income
	(Salaries and Wages
Classification by	(Entrepreneurial
Kind of Income	(Dividends
	(Interest
	(Net Rents & Royalties

Because of space restrictions, the classifications of income by Industries is not presented here. For these data, the reader is referred to the publication of the National Industrial Conference Board referred to in the first paragraph of this chapter.

The principal purpose of the type of graphic presentation we have used in this chapter is to indicate "Income Departures" of each classification of income in Maryland from the national trend in the corresponding classification.

The interesting thing about Exhibit 28 is that it indicates the good cyclical characteristics of Maryland's income in the '29-'35 part of the '29-'37 cycle, to which this exhibit relates.

Following the method of analyzing the cycles which we have previously described it may be said that for the over-all period '29-'35 total income and every classification of income showed positive departures for Maryland.

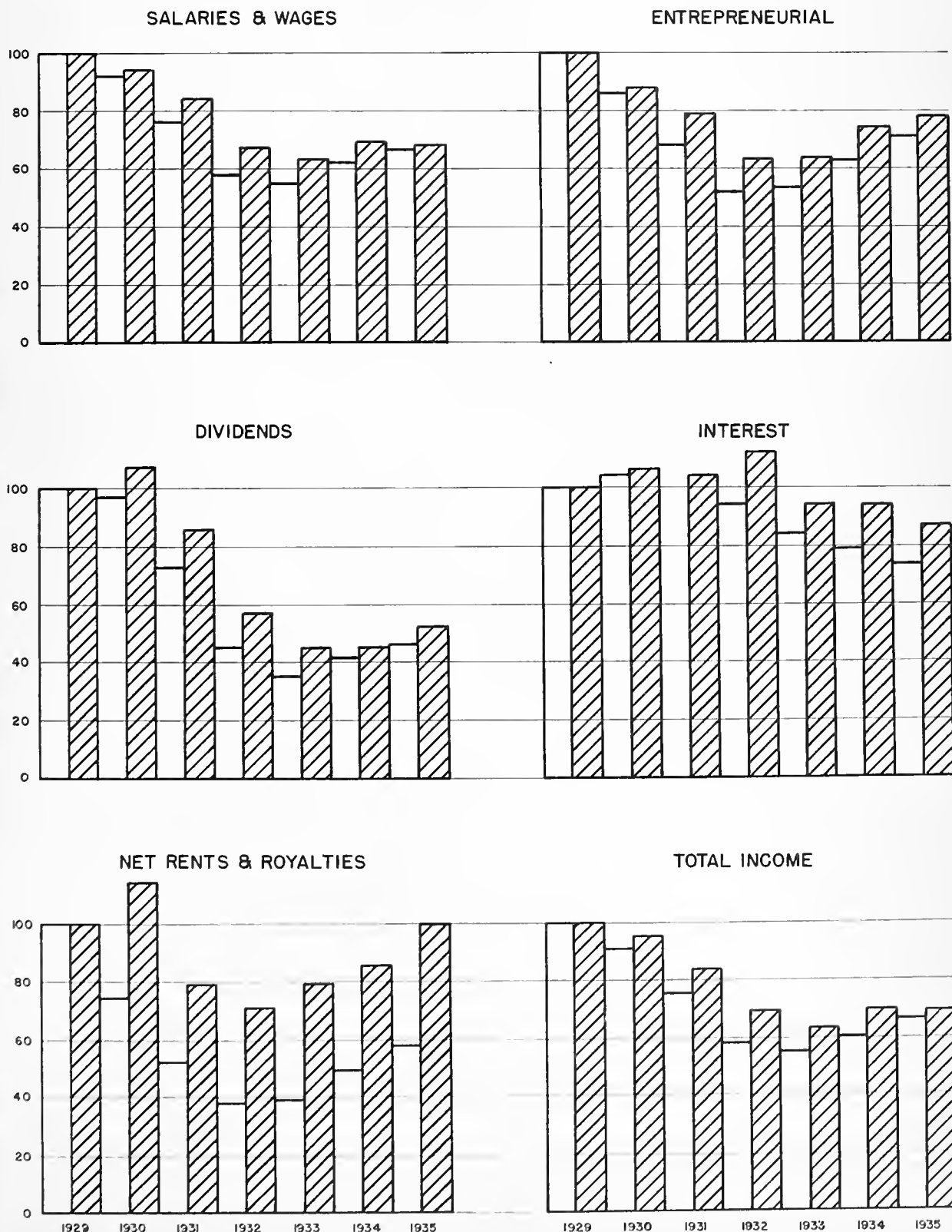
On recession lows Maryland again shows better than the nation in all cases. In recoveries, with the exception of the classification "interest" which showed a positive departure, total income and all other classifications showed slight negative departures.

EXHIBIT-30

ECONOMIC STUDIES OF MARYLAND PART III

INCOME UNITED STATES & MARYLAND

UNITED STATES
MARYLAND



CONCLUSION TO PART III

We have completed in Chapters 1 to 7 of this part a description of the various statistical series designed to indicate changes in the Base Pattern of the State and its Industrial Sections as established in Part II.

The methods of utilizing these observations of change, indicated by the Statistical Series of Part III, in the diagnostics of Part IV will be described in Chapters 1 to 4 of Part IV. The methods of Validating the "indicated" changes of Part III will be described in Chapter 9 of Part IV.

